

CHYRURGEONS
STORE-HOUSE

SCULTETUS

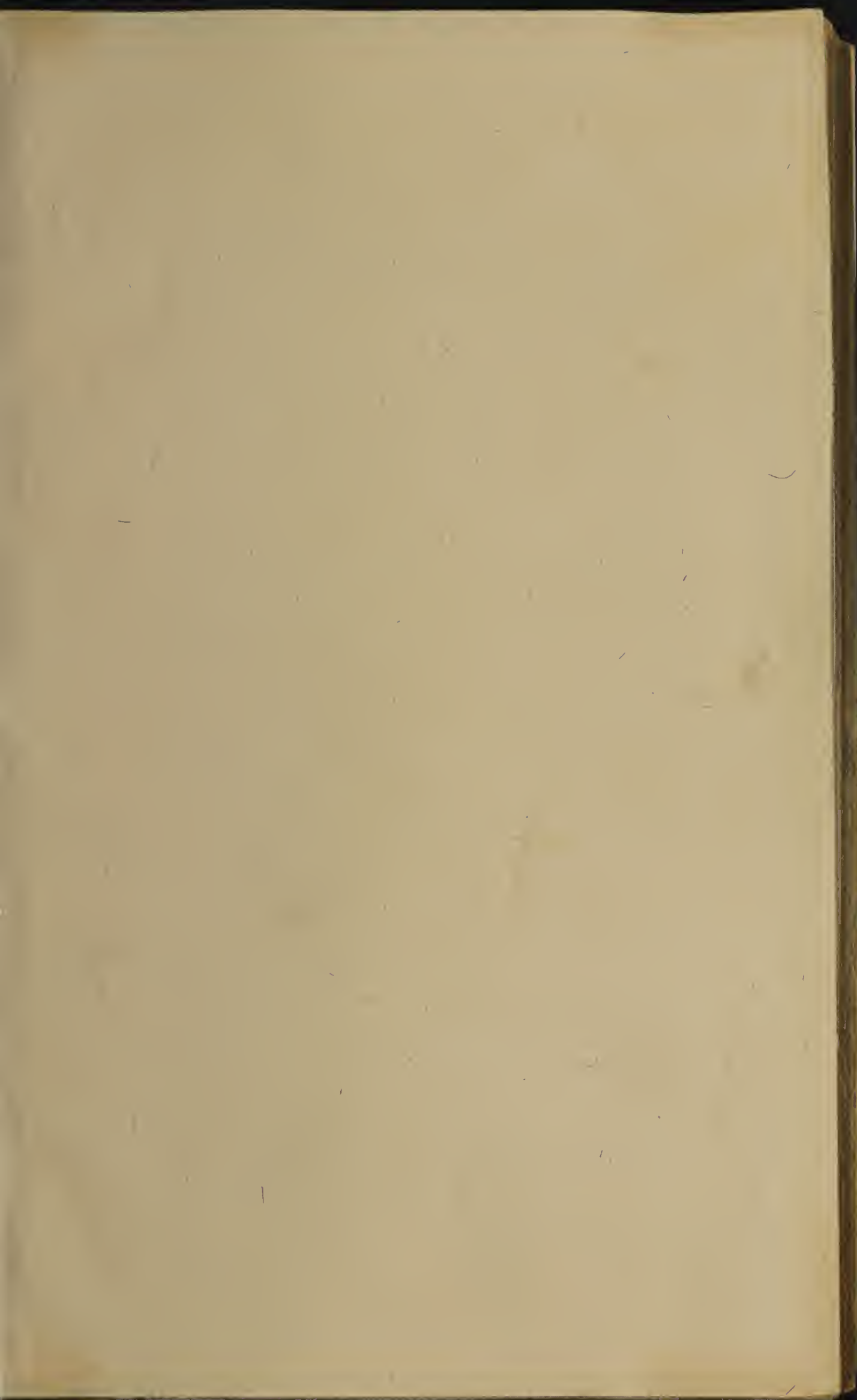
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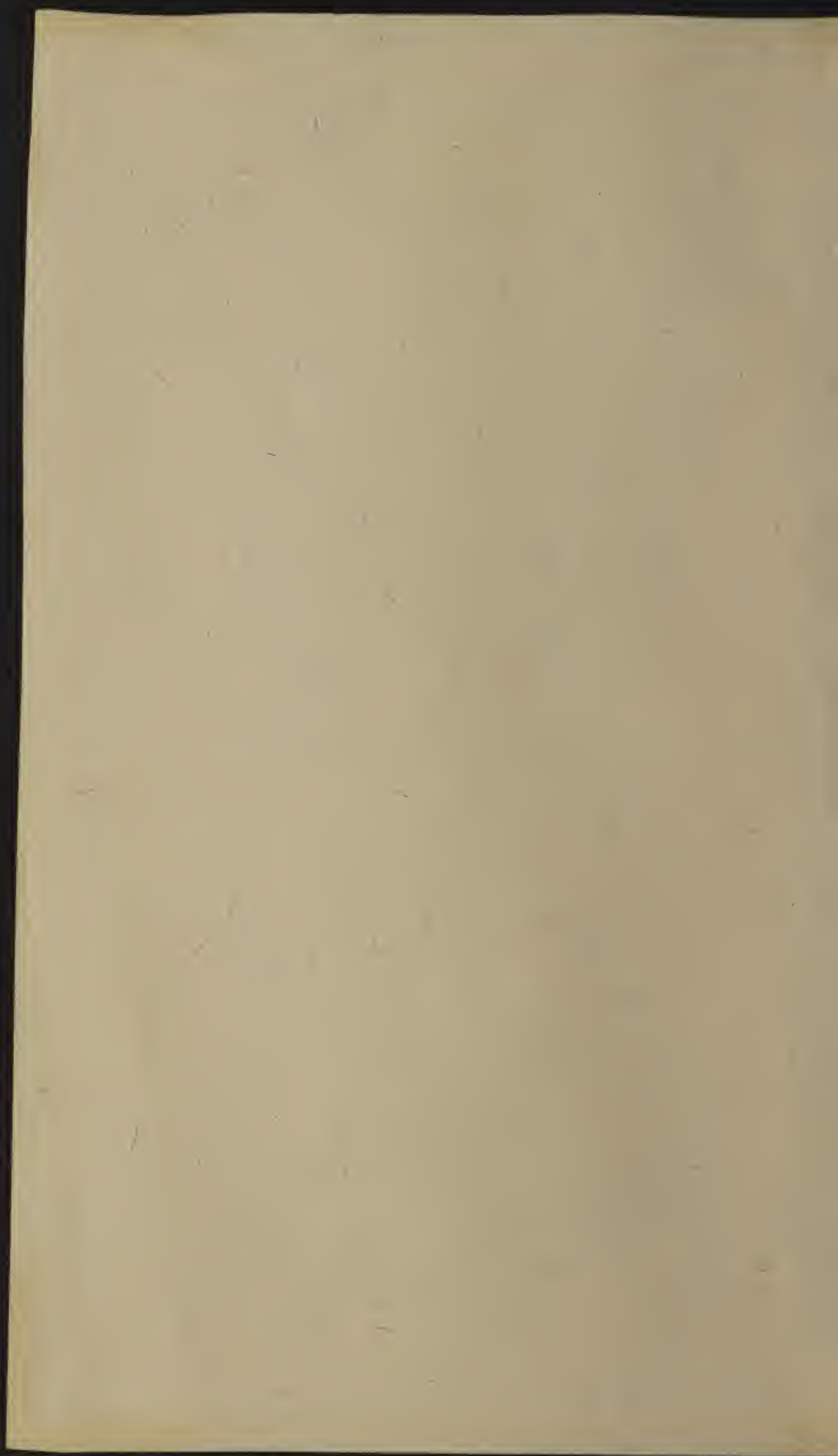


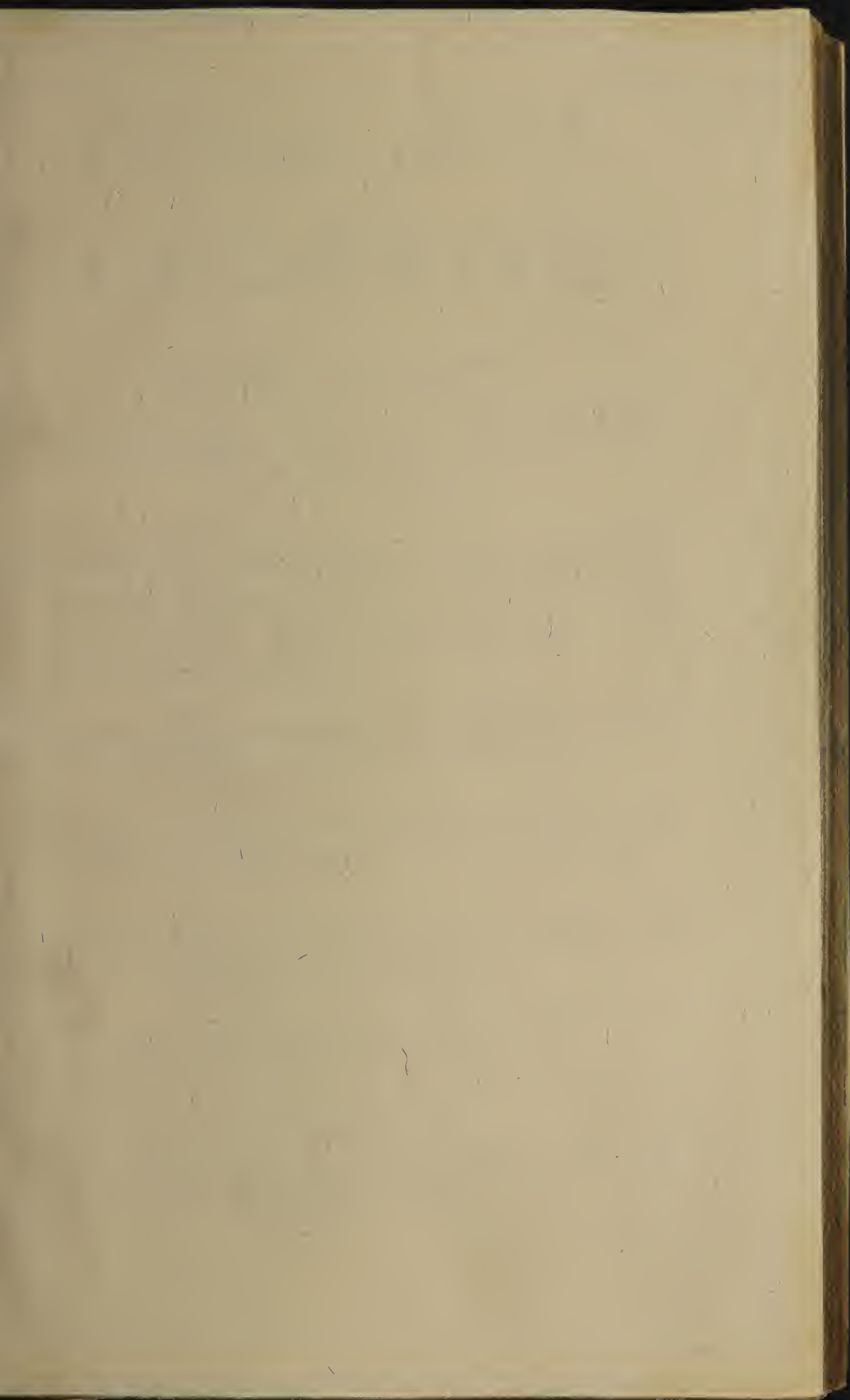


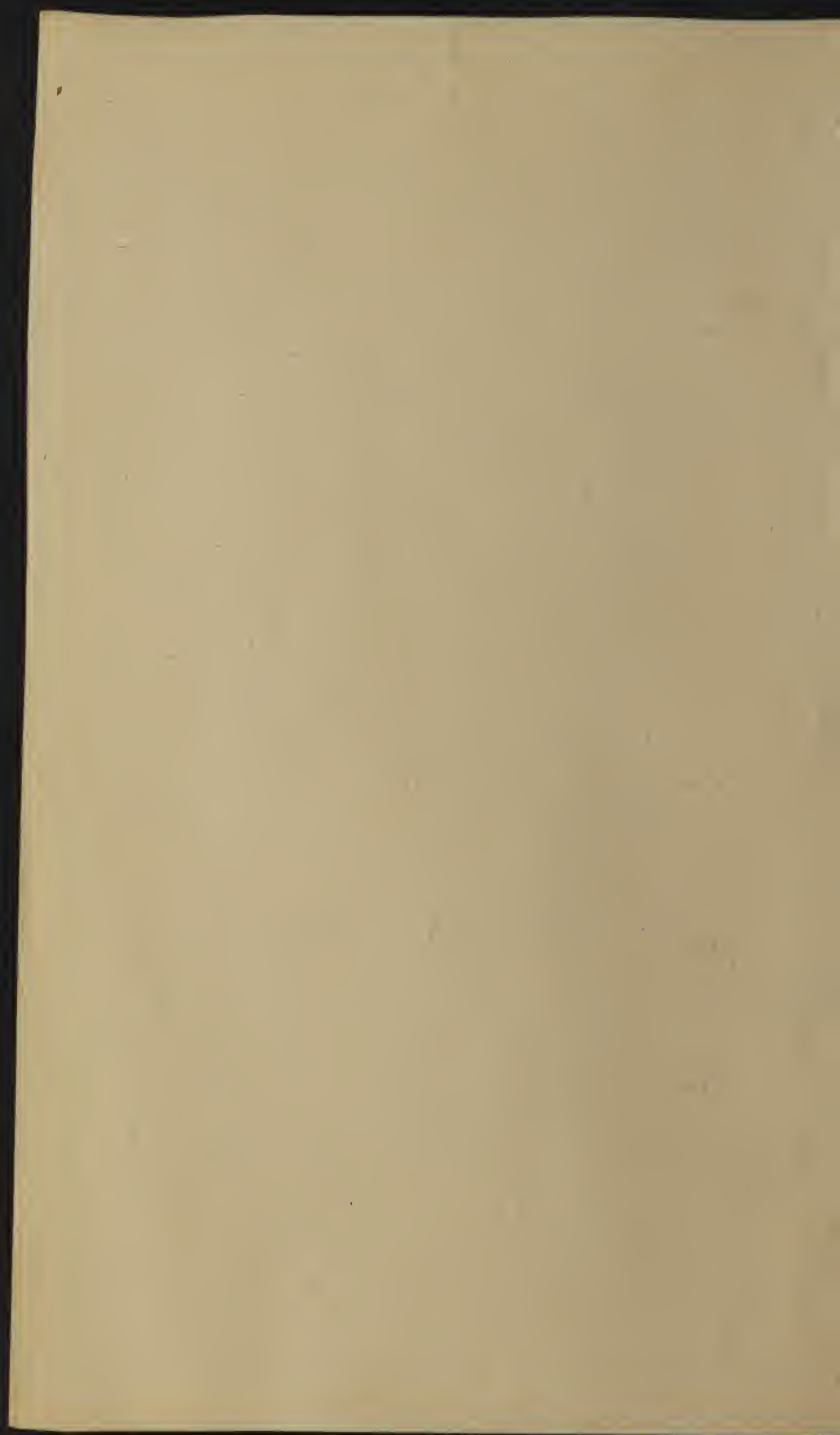


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THE
CHYRURGEONS
Store-House:

Furnished with Forty three

TABLES Cut in BRASS,
IN WHICH

Are all sorts of INSTRUMENTS, both Anti-
ent and Modern; useful to the performance
of all Manual Operations, with an exact
Description of every INSTRUMENT.

Together with a hundred Choise OBSERVATI-
ONS of famous CURES PERFORMED.

With three Indexes. 1 of the INSTRUMENTS. 2
of CURES performed, and 3 of Things Remarkable.

Written by Johannes Scultetus, a famous Physitian, and
Chyrurgion of Ulme in Suevia.

And faithfully Englished. By E. B.

L O N D O N,

Printed for John Starkey, at the Miter in Fleet street, near
Temple-Bar. 1674.

THE HOSPITAL

REPORT

1872

THE HOSPITAL FOR THE
FOLLOWING YEAR

1872

THE HOSPITAL



TO THE

Most Magnificent, Most Noble,
Most Powerful, Most Know-
ing, and Most Prudent, The
Sheriffs, Consuls, and Senatours
of the Renowned *Imperial Re-*
publick of *U L M E*.

My ever Honoured LORDS and
PATRONS, all Observance
and Happiness.

MOST MAGNIFICENT, &c.

 *Whoever doth behold clearly with the*
eyes of his Understanding the wonder-
ful works of the Eternal Moderatour,
and Governour of all things, he is im-
mediately delighted with the sweetness
of that Contemplation; and the more he is delighted,
the farther he searcheth into them. By searching daily

he learns the more, and is the more ready and willing to consecrate his knowledge to the publick good; and by the help of drawing and engraving to transmit his experience to all posterity. The Antients discovered much, and yet left much more still to be discovered. My Uncle, of Pious Memory, first led by the admirable direction of God, devoted his mind to the study of Physick from his youth, and without vanity, I may affirm, that he attained to no small glory, in the happy performance of Chyrurgical Operations: and wouldst that he chose that stupendious Miracle of Nature the Fabrick of Mans Body to be his Subject, and did contemplate it with great delight; he collected every day new Observations, which he committed to Writing intending one day, after having revised them, to make them Publick; and I wish to God a milder Fate had spared his Life for some years, that those Productions of his might by himself in their due time have been brought forth into the world; But God disposing it otherwise, upon his untimely departure out of this Life; and dying intestate, I came to be one of his Heirs; and having been ever observant to him, and of the same Profession, I thought it would be a high offence, to involve, as it were, in Cimmerian darkness the works of him, to whom I owe my education; and as his Heir I hold my self obliged to perform the desires of the deceased, which I hope in this work, I have in some measure satisfied: as also the desires of friends, who, by Letters, have earnestly requested the Publication of it, but the chief motion which hath induced me to set it forth is, that I might Dedicate it to you my most
hono-

honored, &c. Finding it by divers writings which he left behind him, that it was the intention of my Unkle, if he had continued alive, to Consecrate this work to your Lordships; and therefore, I should be very much to blame, if I refused too perform this service in honour to his pious ashes.

But that which hath ravished my Unkle and my self with admiration in your fair City of Ulme is, your still more fair order of the Senatours; which in the three Estates. Ecclesiastical, Civil, and Military, flourish in the highest degree of honour; and as the understanding in the mind, in the body the eye, and in the eye the pupill, or sight: so in Ulme, the eye of Suevia. The Senators Order, as the pupill, and sight of it directeth all things: your most excellent Commonwealth, is free from putting an imperious yoke upon Mens consciences: your Court is free from flattery, and all impartiality: your walls are free from foreign Forces; and in your free City, speech, and all things else are free: who therefore hath not the same Veneration for you, Fathers of your Country, as he hath for the Country it self? and who doth not testifie all manner of acknowledgement and submission to you. These thirty years warrs which Christian hath waged against Christian: under the wounds of which, almost all Germany still groaneth, by your directions, under God, have not shaken our walls, have not violated our Temples, and Altars, and have not ravished our Virgins; all these your most constant care, your inbard sedulity, and your high prudence, have preserved: you have vouchsafed to allow both my
Unkle

Unkle, and my self, an honourable Sallary out of your Treasury: without which liberality of yours, I could not have been at the University: especially the Venetian, nor have lived three years there, and followed my Studies. You have since received me into the C^onsell of Physitians, and have commanded me to be fellow of their Colledge; These, and many other benefits heaped up upon us, my Unkle while he was alive, did always most gratefully acknowledge, and his quiet Ashes at present do confess them, and I myself who have out-lived him, shall at all times retain a memory and due sense of them. Your singular humanity also, and incomparable civil obliging nature, worthy Senators hath emboldned me so far, that I have ventured to trouble you with the Dedication of the Chyrurgions Armory, and Store-house, and to defend these Physicall Meditations with your Patronage, as with the Shield of Ajax.

I beseech you therefore, Governours of your Country, to accept kindly, this small Plledge of a grateful mind; which I most humbly present you with, and pray to God to preserve you, protect you, and defend you ever, in peace, happiness, and prosperity; together with thi Common-wealth, and all the Members of it, that you may rule to the benefit and good of ours, and after Ages.

Your most obedient
Johannes Scultetus.



THE
AUTHORS
PREFACE.



That our first Parents were framed and Created by the Divine Power, in Perfection, strong in Body, blessed with an equal Temperament, Impregnated with a most pure flame of Life in the Oleaginous natural Moisture, and Absolute all manner of ways. This pressing Argument seems to convince, That in the State of Innocency they had power to Regulate their Bodies without any fear of Death, and fully to restore, in the same goodness, their Radical Moisture, at any time wasted with heat; and to continue it even to immortality, if they had not been deceived by the Craftiness of the Serpent, and tasted of the forbidden Fruit, whereby they were afterwards obnoxious to death, and their Posterity like unto them.

Those also who lived before the Flood, and were not

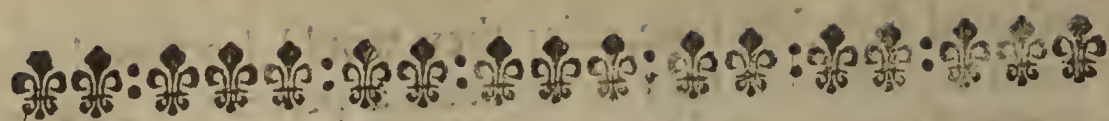
at so great a distance from their Original, by the Holiness of their Life, and their Innocent and Simple Diet, taken only from Vegetables; some of them lived neer a thousand years, and others protracted, and extended their term of Life to many Ages; but after that, when Gluttony, and Intemperance provoked mens appetites, with divers sorts of Dishes, and the unlawful use of Venerie did by degrees debilitate their Bodies, and exhaust their Spirits; the length of their days was very much shortned, and their Lives were terminated in an hundred and twenty years: for as a thick Cloud doth imbibe and obscure the Rays of the Sun, so a vitious habit of body doth Cloud, and Obscure the Light of our Body, and Lamp of Life: and thus daily necessity gave a beginning to the Therapeutical part of Physick, whilst circumspect Fathers of Families were obliged to procure some Domestic helps, and easily acquired Remedies to stop, or retard the too hasty rigour of Death,

But though many Diseases may extirpated by the strength of Nature, alone, by the due observance of the six *Res non Naturales*, and the Alternate use of those two great helps, of Altering and Purging Medicines; yet there are some so obstinate as not to yield to any of these, or to be remedied any other way than by Chyrurgical Operations, by dividing what is united, by uniting what is disjoyned, and by extirpating what is superfluous, according to the true saying of *Hippocrates*. *Diseases which Medicines cure not, the Knife cureth; what the Knife cures not, Fire cureth; what the Fire cures not, they are to be esteemed incurable.*

In which Operations of Chyrurgery, both in former times, and at present, almost an infinite number of industrious Promoters of Physick, *Aegyptians, Grecians, Arabians, Latines, Italians, French*, and of most Nations, by reason of the necessity of them, and the benefit accruing to mankind from them, have so diligently taken pains

pains all their life-time, that they would leave nothing unattempted, till they could add a perfection to this part of Physick, and by their Writings consecrate it to Posterity. These following forty three Chyrurgical Tables, for the accurate delineation of the Instruments, their Form, and Magnitude, the faithful Demonstration of the manner of Working, and the useful Observations added to them, not unworthy, perhaps, to see light, I have gathered together, for the common good of Mankind; delivering what with my own eyes, and hands, I have often proved, and experienced: that according to the slenderness of my abilities, and the smalness of my Talent, I might render some service to Posterity; especially in the Reading of *Hieronimus Fabricius*, whose words, and footsteps I follow here, and in my Practise. Others hereafter may attempt things more difficult, may supply defects, and publish things more perfect; for all Envy being far from me, I leave a free, and open field to all Ingenious Persons, desiring earnestly they would set forth something more elaborate than this; or in the mean time, vouchsafe to use it.

THE



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OF
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V

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NOte that the Figures of the Instruments of this Edition, are diminished by half in proportion to those ingraven at *Ulme*; so that taking them to be as big again, you will have exactly the due and just bigness at first delineated by the Author.



A DESCRIPTION

Of all sorts of Instruments usefull in
CHYRURGERY.

Written by
Dr. JOHN SCVLTVS, &c.

The first Table.

*Of Pipes, solid and cutting tools of Iron, whereby
Fontanels are made with fire.*

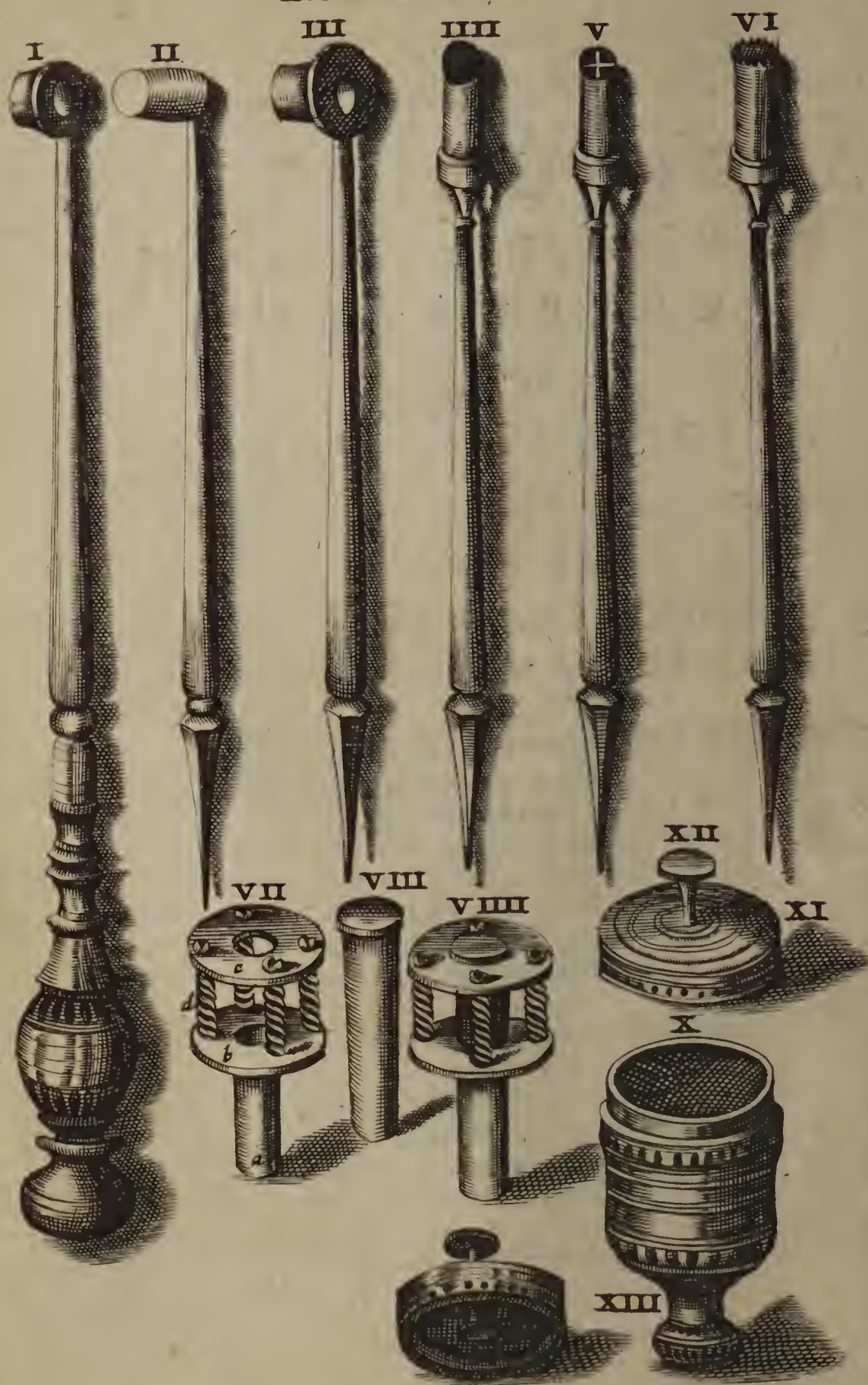
THE I. Figure is an Iron Instrument, which *Hieron. Fabricius ab Aquapendente*, concerning a Fontanel in the coronal suture, calls a small Pipe, and the place of the Fontanel being found and marked with ink, he forcibly thrusts it on with his left hand; that by the impression, and the natural coldness of the Pipe, the heat of the red hot iron, (Figure II. following) and the pain thence arising, might be palliated; and the parts adjoining might be defended from the injury of the fire.

The II. Figure is a solid and uniform iron instrument, without a handle (yet one of bone or wood may be fitted for it, as the before-mentioned Pipe hath) which being well fired, and with the right hand thrust into the aforesaid Pipe, burns a fontanel. With these two iron instruments Fontanels are made only in the members of mans body; namely, when the sick are not fearfull of a red hot iron, or the Chyrurgian hath not the *capsula* of *Iulius Casseri-Placentinus*, to hide his actual cauterie with.

A

The

TABVLA.I.



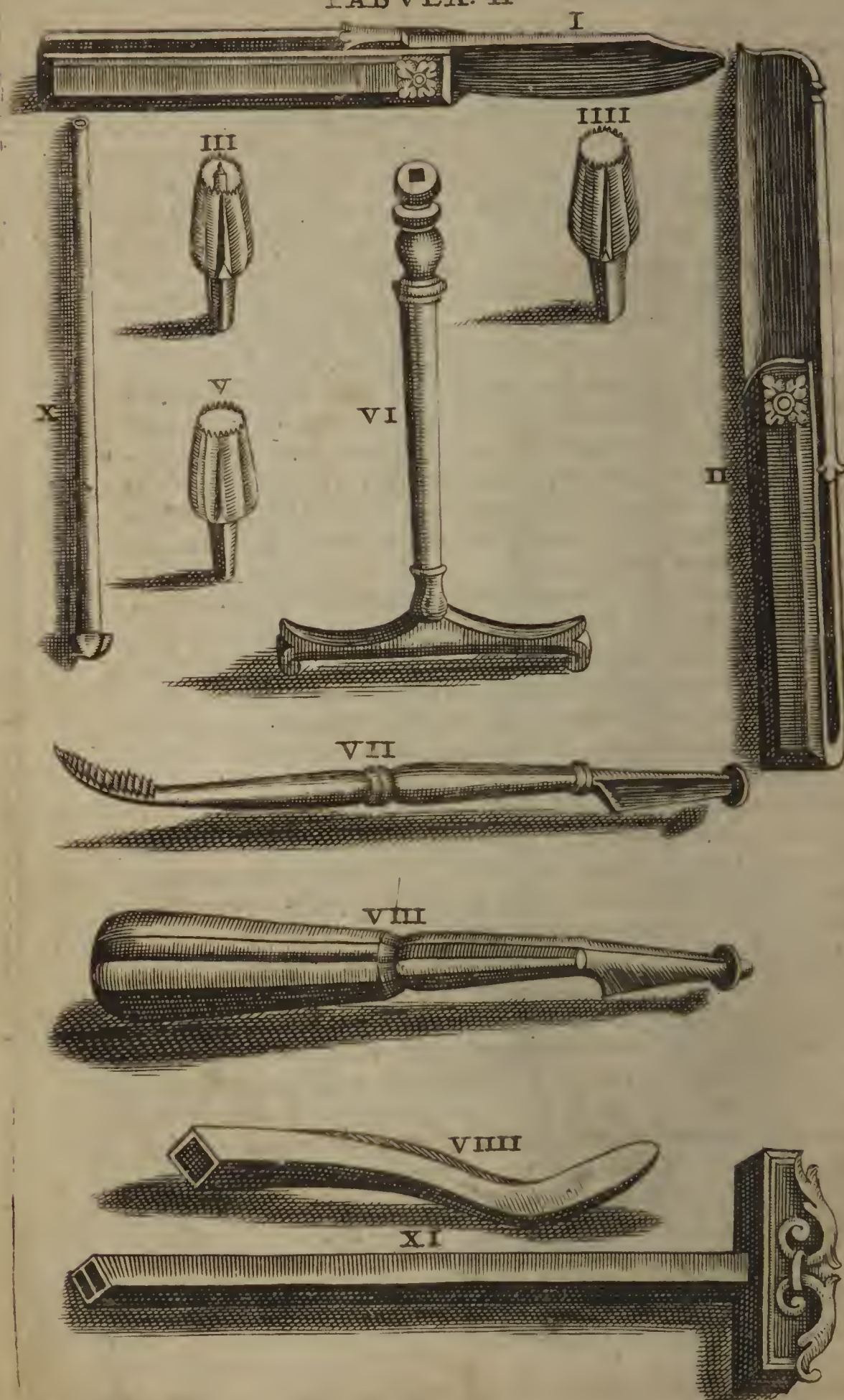
The III. Figure is also an iron Pipe, yet somewhat deeper then the former, to receive the instrument that followeth next.

The IV. Figure is an instrument plainly hollow and cutting; by which, being made red hot, and thrust into the Pipe preceding, we make a fontanel, where the coronal and sagittal sutures meet; not only burning, but cutting also by the sharp point of the instrument, at the end thereof. This when it toucheth the Skul must be turned about, that it may make some print upon the Skul-bone. Many dislike the use of this instrument, not only for the pain they say it causeth, but for fear of the dangerous inflammation in the *Pericranium*, which afterwards may easily be communicated to the *Dura mater* which is under it, by the affinity of the sutures; wherefore modern Chyrurgians rejecting this, use instead thereof one that is solid and uniform; (whose form you shall find in the II. Figure of this Table) yet in my judgment the hollow instrument is to be preferred, because that solid instrument may far more easily bring the foresaid inconveniences: I add that burning of the sutures with a solid instrument proceeds too slowly, by reason of the thickness, hardness, and density of the skin of the head: But manual operations, chiefly those that are performed with a red hot iron, must be done most nimbly.

Figures V, and VI. are iron tools not simply cutting and hollow; but the first hath a star at the end, and the latter is made with teeth; of these two, that by reason of the star cannot at all be turned about; and this by reason of the teeth doth not cut so readily: Wherefore modern Chyrurgians, and amongst them almost the chief, *Hierom Fabritius ab Aquapendente*, reject these two instruments as unfit for operation.

The Figures VII, VIII, IX, X, XI, XII, XIII, taken as joined together, make the *capsula*, an instrument to burn Fontanels in parts placed without the head, the best of all, and the most absolute in all respects; which was invented by *Iulius Casserius Placentinus*, to avoid these three inconveniences; namely, heat, pain, and sight of the fire, which fearfull men, women and children are afraid of. This invention of *Placentinus* hides the actual cautery; which (because it most suddenly causeth an Escar, so that the Patients can scarce observe it) if it be not to be preferred before potential cauteries; yet I think, in all right, it ought to be used in their place: For no pain is perceived at all, or burning underneath, by reason of the end of the case, and the harder lying upon it by depression, and the wonderfull swiftness in the operation; for which cause there is not any offence, in the least, to be feared of the parts near unto it.

TABVLA. II



The VII. Figure is a hollow plate of iron, round, and immovable (a. b.) to this, and to the former plate of iron likewise, that is round with a hole in the middle, and movable toward the lower parts, (c) four little wheels are fastned in, which are carried about with a wier of brass, (d) that the Style (Fig. VIII.) that is solid made of Copper, being made red hot, and thrust into the foresaid Plates; (as you see Fig. IX.) and laid aside into the wooden *capsula*, Fig. X. may be hid by the cover that hath a hole in it, Fig. XI. and by the help of a small pin with a broad head (Fig. XII. and XIII.) may be pressed down.

The II. Table.

Of Celsus his *Spatha*, *Rasour knife*, the round *saws*, male and females, the handle to turn them, the *Centicular Instrument*, the most weak *Levitor*, the keeper of the membrane, the cross dividing instrument; all which the Chyrurgian hath need of to cure the fractures of the Skul.

Fig. I. is an instrument which *Hippocrates lib. 2. de morb. cap. de suppuratâ peripneumoniâ*, calls *μαχαίρης ενδοειδής*; but *Celsus* and *Paulus* call it commonly *Spatha*; namely, a double little knife sharp on both sides, and in the upper part somewhat broad, which at the end united in one point; with this the wounds of the head are dilated cross wise or triangularly, and *Paracentesis* is safely made in the Thorax.

Fig. II. is a shaving knife, or straight pen knife, that cuts but of one side, and is blunt on the other, which is used when there is no fear of the parts underneath; namely, in dividing the scalp of the head as far as the skul, and in opening nodes of the French pox, especially upon the shin bone or elsewhere; again where both edges may do hurt, as in cutting the dead child in the womb into many parts, and dividing the caruncles of the matrix; and therefore is it called *Scodeghino* by the Italians.

Fig. III. is the male *Trepan*, or an instrument made of the best steel, hollow, round, at the utmost brims nicked like a saw, and it hath four shoulders; namely, that part of the *Trepan* that must be turned about the bone, the Greeks call it *τροχανός*, but *Celsus lib. 8. cap. 3.* calls it *Modiolus*; which hath a pin in the middle, that when it first begins to be turned, it may stand fast upon the *cranium*, made bare of the *Pericranium*; and that the parts about it, name-

ly the lips of the wound, and the *Pericranium*, which are parts most sensible, may be preserved the more safe from hurt. But if the Trepan to be used had no pin at first, the trepaning of the skul would be performed with the greatest danger, and with vehement pain.

Fig. V. and VI. are female Trepan, of the same bigness with the precedent male; and there is no other difference between these and that; but that these want a pin, and so are called females. Before we use these females we must make some print upon the skul with the male, that the females may stand the faster upon it. Now for to trepan the skul, the Chyrurgian must have at hand at least three Trepan exactly equal one to the other; namely, one male and two females, that he may oft-times change them, and dip them into cold water or oyl of roses, least being full of dust they should hinder the operation; or else being heated by frequent turning about, they might inflame the skul and the membranes that lie under it.

The invention of shoulders that hinder the Trepan from sinking down into the membranes of the brain, or into the substance of it, is an argument of the excellent wisdom of *Hierom Fabritius ab Aquapendente*; for though some of the modern Chyrurgians, as *Vid. Vid. lib. Chyrurg. 4. c. 10.* and *Ioan. Andreas à Cruce lib. 7. de Instrum.* make also some mention of the shoulders in Trepan, yet none of them took care to have them so exactly and accurately made as *Fabritius* did: I used these Trepan never but with good success; and at this time they are used (all the instruments of the Antients being rejected, which they formerly invented to terebrate the skul; the figures whereof are to be seen in the Authours now quoted, and in *Paræus lib. 9. cap. 18.*) by the Chyrurgians, especially those of *Padua*, and by the successors of *Fabritius* in his Practical and Chyrurgical profession; amongst whom yet lives that most famous Physitian, Chyrurgian, and Professour at *Padua*, *Petrus de Marchettis*, Knight of the Order of Saint Mark, of the Venetians; who was formerly my much respected School-fellow, for many years, in Anatomy and Chyrurgery; at whose wonderfull dexterity in operation (whereby he almost surpasseth all the Chyrurgians of Italy) not only all Italy, but Schollers coming from all parts are astonished; and innumerable persons, being thereby cured, extol him to the Heavens.

Fig. VI. is the other part of the Trepan, which is called the handle, or part to turn it with; and there is a hole cut in it, by means whereof the ends of the Trepan, wrapt about with cotton, are easily

sily put in and taken out, so often as need requires to change these round saws. By this means a Trepan is made of a round saw and the handle, wherewith the skul is quickly, safely and easily perforated.

Fig. VII. is an instrument compounded of a scraping tool (because of the lentel at the end of it called a Lenticular) and a Levitor. At the end of the perforation of the skul, this Levitor is thrust in betwixt the lips of the bone cut forth, to move the small bone up and down, that it may grow loose, and may be taken forth by the toothed part of the Pinchers, (Table IV. Fig. I.) also it is used to raise up mean depressions of the skul, and hath its stability only in the Chyrurgians hand; the Lenticular serves for all roughness to smooth it, and to scrape it off (which is left behind after terebration, and cutting forth of the bone removed) lest that the membranes of the brain, by reason of their continual motion, should strike against it and receive some hurt.

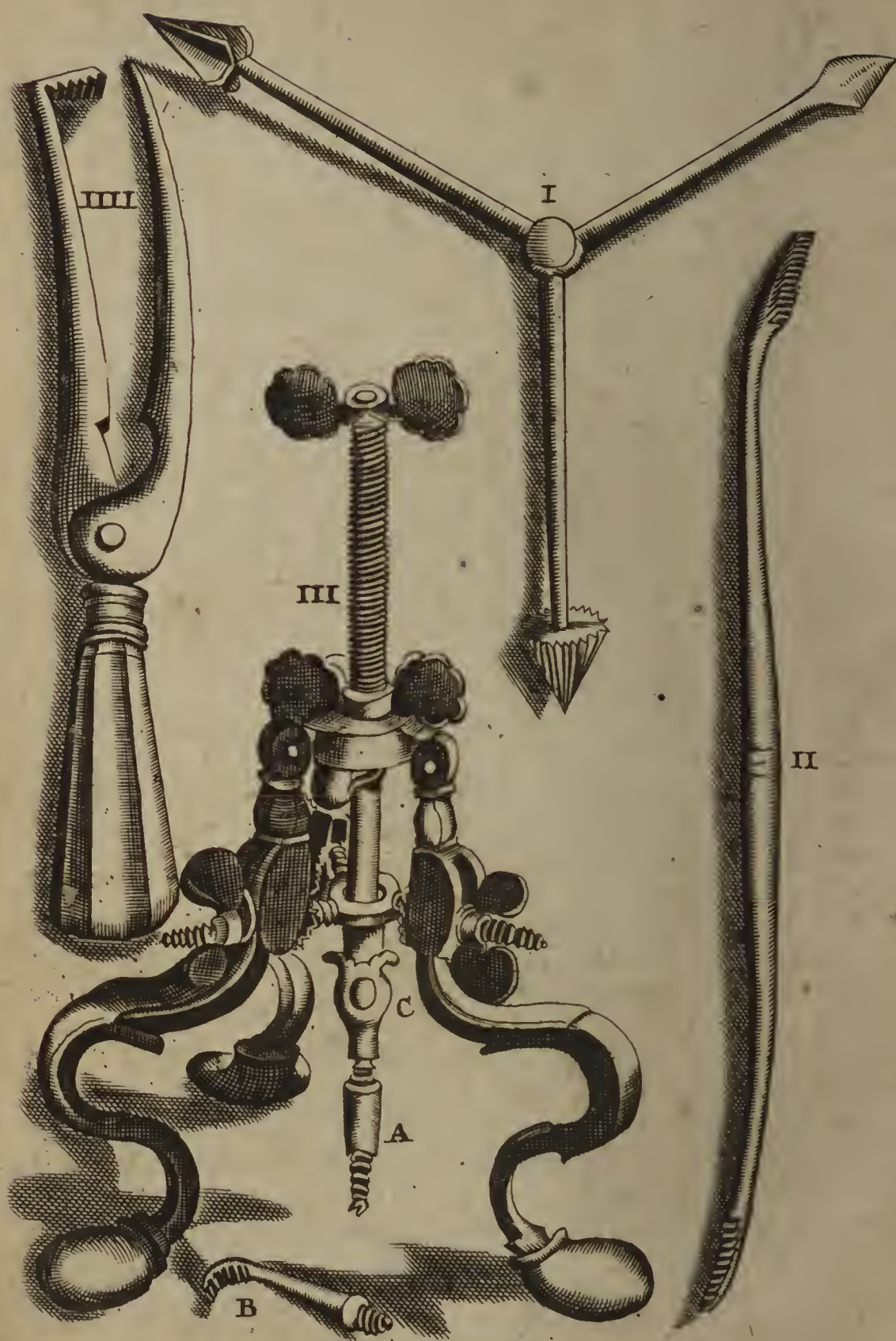
Fig. VIII. is a Lenticular instrument alone, which levigates the brims of the hole made as I said before, lest pricking the membranes they might cause pain and inflammation.

Fig. IX. is a plate of silver, (for it must never be made of iron, because of the imbred cold thereof, which is hurtfull both to the *dura* and *pia mater* that cover the brain) firm, somewhat crooked, and smooth on the outside, which we use in great depressions of the skul, and in fractures, where it is necessary to perforate the skul-bone three or four times with the Trepan, and to cut forth the spaces between the holes; for then the Plate is let down between the skul and the *dura mater*, that the outward part of it may be nearest to the brain, lest by the sharpness of pincers and saws, (the Figures whereof are to be seen underneath, Table V. and VI.) the membranes of the brain should either be pricked or cut unawares: Hence *Celsus*, who in describing iron instruments for Chyrurgery was very diligent, *lib. 8. cap. 3.* calls it the preserver of the membrane, in Greek *μυωιγγροφύλαξ*.

Fig. X. is a cross dividing instrument, whereby the *dura mater* meanly pressed down, is exactly applied to the skul, that the purulent matter, collected between the skul and the membranes, may easily come forth by the hole made with the Trepan.

Fig. XI. is a leaden mallet, which men formerly used when they would separate any part of the *cranium* with scraping instruments that cut, (whereof there are divers sorts presented in *Paræus l. 9. c. 5.*) to avoid the noise, and to hinder the commotion of the brain. The modern and more cautious Chyrurgians of this age, use for this operation pincers and small saws; of which a little underneath, Table IV. and VII.

TAB. III



The III. Table.

Of the three-formed Trepan, the stronger Levitor, the Instrument called Triploides, and Paræus his Levitor, wherewith the pricks of the skul are taken away, and the depressions of it are raised up.

FIG. I. is a Trefine, an instrument of only iron, which hath three divers sorts of Trepan, the use whereof is necessary in the pricking of the skul, that doth not penetrate both the Tables, that with them the print made upon the skul may be taken away. The triangular part of this instrument may be used also for the small Trepan, with which *Guilhelmus Fabricius Hildanus*, perforated almost the first table before he applied the Triploides, with a screw.

Fig. II. is a Levitor which I use in depressions of the skul, this raiseth with more force then the other described Table II. Fig. VII, because it hath its firmness, not only in the hand of him that raiseth it, but also in the head.

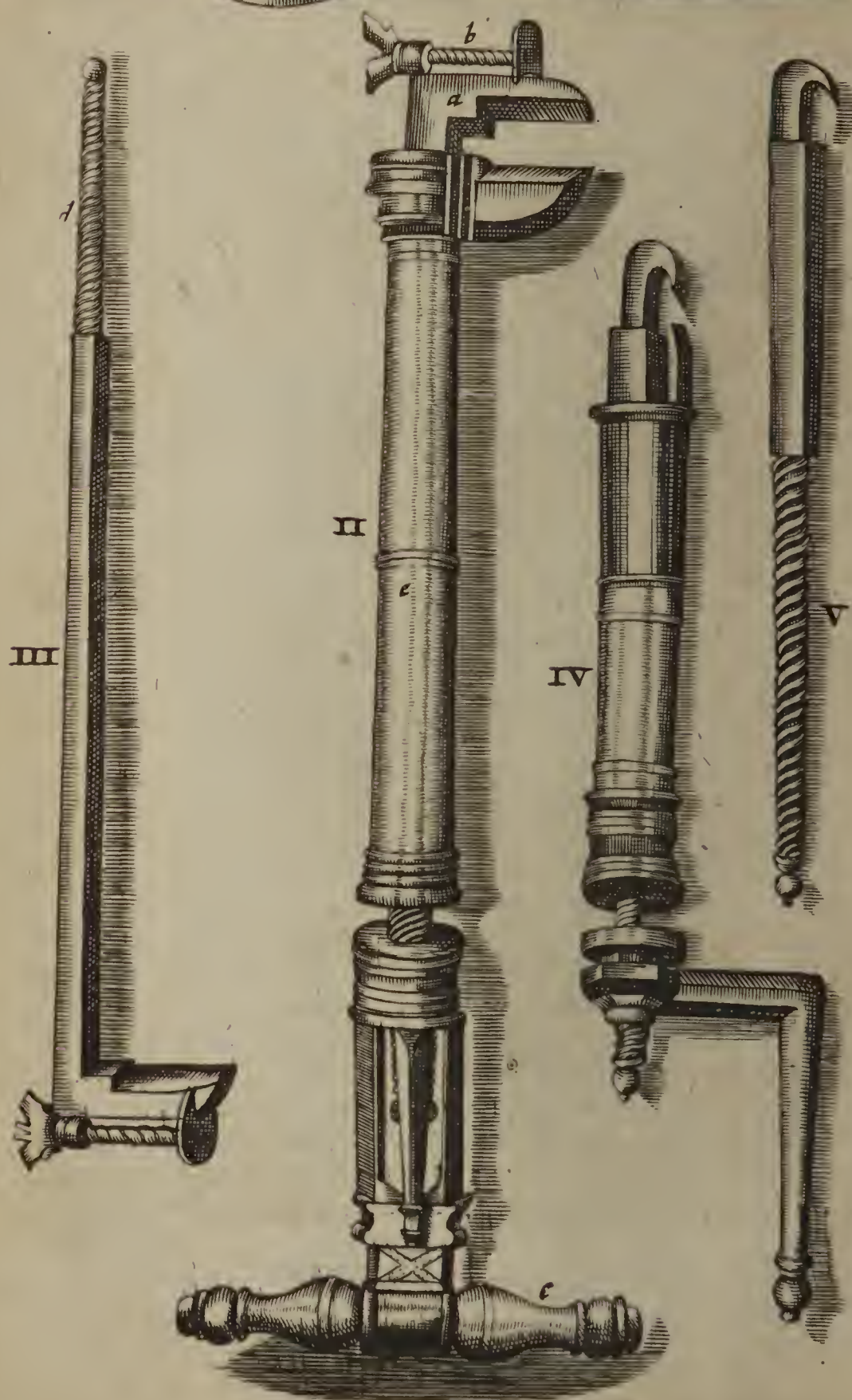
Fig. III. is an instrument called a Triploides, from the threefold basis that it hath: if the depression of the skul be so great that the precedent Levitors are too weak to serve the turn, I let down the Levitor of the Triploides (*b*) if there be room enough, and I raise the bone pressed down, upright perpendicularly; but if there be no place for this Levitor, the middle depression must be perforated with the piercer of the Triploides (*a*,) beyond the Diplois, and be elevated the way mentioned, taking especial care that the wimble perforate not both Tables of the skul, and so prick the *dura mater*. See *Guil. Fabricius Hildanus, centur. 2. obs. 4.* where he most accurately describes the manner of raising the depressions of the skul, yet with other instruments that I never used; but with this Triploides I have reduced one or two depressions with good success.

Fig. IV. is a Levitor which is used by others in the greatest impressions upon the skul, imitating Coopers who are wont to reduce the bords of their wine vessels that are crusht in, with the like instrument. Wherefore putting in the crooked end of the Levitor (*a*) under the bone pressed down, the other arm of the Levitor (*b*) which is streight, must lean upon the sound bone, that whilest the handle is thrust down with the right hand, that bone which is pressed down may be raised with the crooked part of the instrument. Also *Ambros. Pareus l. 9. c. 5.* described and shadowed forth this Levitor.

TA-

TABVLA.IV.

Fig I



The IV. Table.

Of the Puller and Pincer with a Parrats beck, and a Vultures;
whereby small bones that prick the membranes of the brain
are broken off, and taken forth.

FIG. I. is an instrument very necessary for manual operations, which *Paulus Aegineta lib. 6. cap. 23.* calls ἀγκυραεισόλον, and *C. Celsus l. 7. c. 30.* calls *Volsella*, a Puller, with the double and toothed end of it. (A) they take forth the peece of the bone which is corrupt and movable, also darts and bullets and the fragments of them; and all tents and hairs, and all extraneous things of that kind, which are found in wounds. The same thing is performed with instruments printed Tab. XI. Fig. III. and VI. either of which is to be used as opportunity serves. Also this part of the puller serves singularly well to pull out hairs from the ey-lids, which prick the eys. Besides the foresaid uses it is good, for it serves for to wait on Physick, that is to make women fair; for with this women, especially that belong to the Court, pull out by the roots hairs in their ey-brows, and from other parts of their bodies. Note that if a small bone, or something that is accidental in the throat, is to be taken forth; this part of the instrument must be made twice as big as it is here printed. The broader part of it (B) serves to spread plaisters upon linnen or leather, for want of a *spatula*; as also for a safe separation of the *Pericranium* from the bone, before the *Trepan* and scraping instrument be applied to the skull, when there is a defect of nails of the hands of the thumb and fore-finger a little too short; or there wants a haft of that pen-knife printed underneath Tab. XII. Fig. IV. Yet with the longer nails, the *Pericranium* is much safer drawn off from the skul, then by the haft of the foresaid pen-knife, or by the parting knife of *Paræus*, or by this broad part of the puller.

Fig. II. is a pair of pincersto cut out with a Parrats beck (a) upon which is fastned a screw with a broad head, which will not suffer the bill to go in so far as the *dura mater*, (for I use it in fractures of the skul) whence not unfitly it may be called ἀπαπτήση: on the lower part it hath a handle (c.) which is turned about the screw (d.) Fig. III.

Fig. III. is a Parrats bill out of its socket (d. Fig. II.) that the Artist may more plainly see the screw of the bill.

Fig.

TABVLA. V.

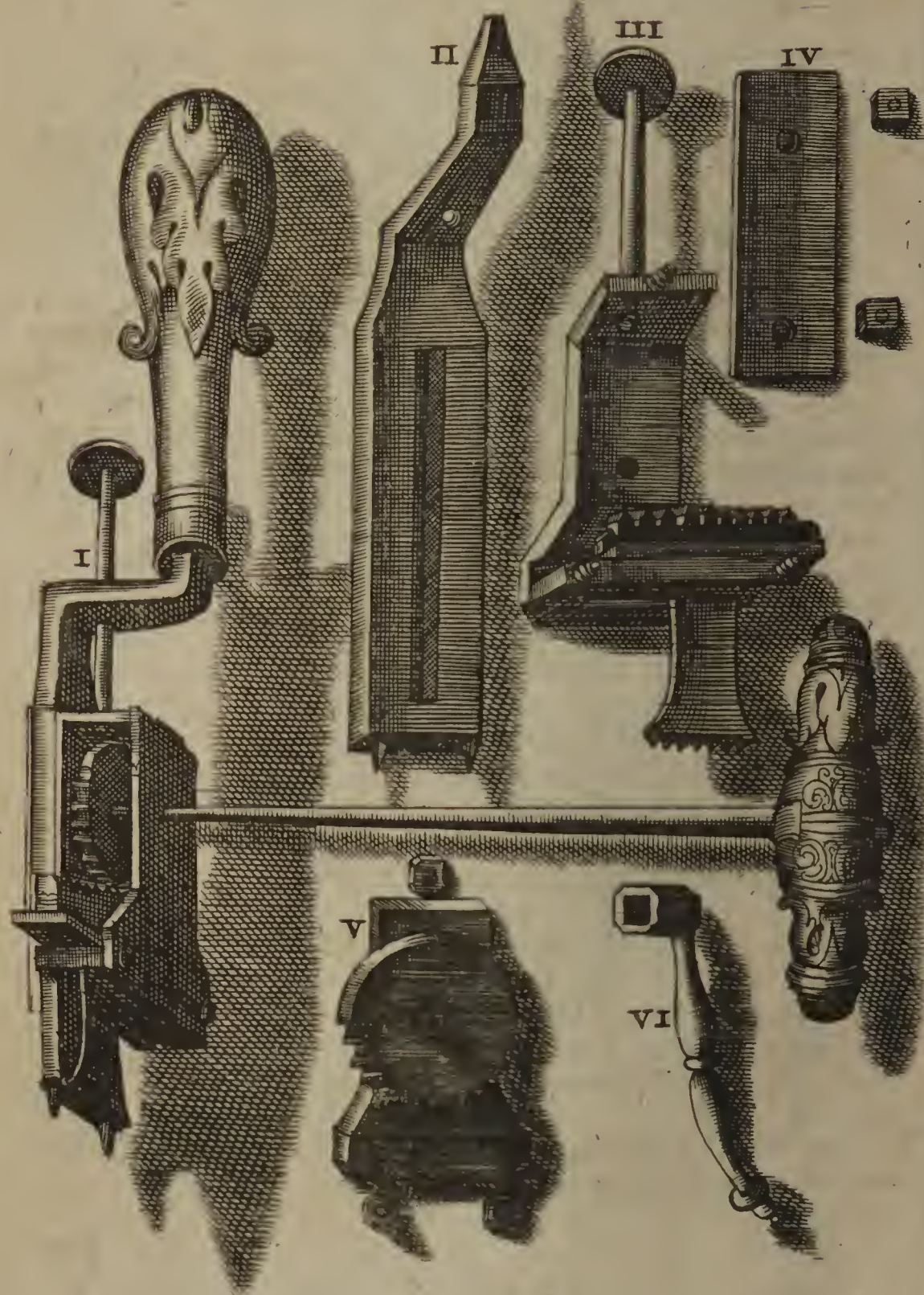


Fig. IV. is a pair of pincers with a Vultures bill, and it is in its pipe, by whose screw it is carried about.

Fig. V. is a Vultures bill described without its pipe, with these two sorts of pincers, as also with those which I caused to be printed underneath Tab. XI. Fig. I. and II; and Tab. XIX. Fig. I. any small peece of a bone in the cure of wounds of the head, is taken forth partly by breaking of it, partly by cutting into it: all which differ in magnitude and forms, according to the variety of bones which must be removed.

The V. Table.

Of the turning saw, whereby the distance between two holes is cut asunder.

FIG. I. is a turning little saw provided with two wheels with teeth, and it is most usefull to cut out the distances of two or three holes made with the Trepanns. For where the Levitors above described and printed, by reason of the narrowness of the chink (which is almost alwaies joined with late impressions made upon the skulls of persons that are at full years) have not space sometimes, there is need that two or three holes be made in the skul with Trepanns, the distance between them is cut forth with this small saw, without any danger of hurt, whereby the Levitor may be the more commodiously put down, and the small peece of the bone, which oft-times pricks the membranes, may be taken forth. The parts of this instrument which I invented, where they are joined, they are marked with small letters; where they are parted, with great letters.

Fig. II. is a plate of iron *A* cut forth in the middle long waies, which above hath the handle *B*, and the hole *C* in the bending of the plate; but beneath on both sides a sharp edge *D*, whereby it stands firmly on the naked skul.

Fig. III. is a small pin with a broad head, which is marked with an Asterism, and passing through the hole *C*, Fig. II. it is fastned in the capsula *E*. This capsula *E*, is fastned regularly to the iron plates hole *A*, Fig. II. by the means of a small latten plate Fig. IV. by two screws, which the capsula hath on the back side, that are correspondent to the latten plate; and by so many little knots, that the Chyrurgian, by help of the small pin, may at his pleasure in his actual operation move the capsula up and down; the axis of
the

the small wheel is put into the hole *H*, as appears by Fig. V, and the center of the small wheel. The little plate *I*, is toothed above, and there it receives the wheel, beneath *L*, it is equal on both sides, that the small saw *K*, may be fit to move regularly up and down in the capsula, and the fissures of the Fig. V. *M*, by the help of the wheel and the handle. The latter plate *N*, is hollow in the middle, and hath two screws *O*, by means of this plate, the little saw, when the instrument is perfectly set together, is drawn equally hither and thither.

Fig. IV. is a latten plate, with two little mothers, which I called before little knots.

Fig. V. is a small wheel half toothed *P*; and the half capsula *Q*, together with three holes *R*; wherewith it receives three screws, Fig. III. fastned with three knots or little mothers.

Fig. VI. is a key whereby the instrument is divided into its parts, and again is set together with the same. The letter *T*, shews the axeltree, that perforates the capsula and small wheel in the back part; and *V* is the mark for the handle.

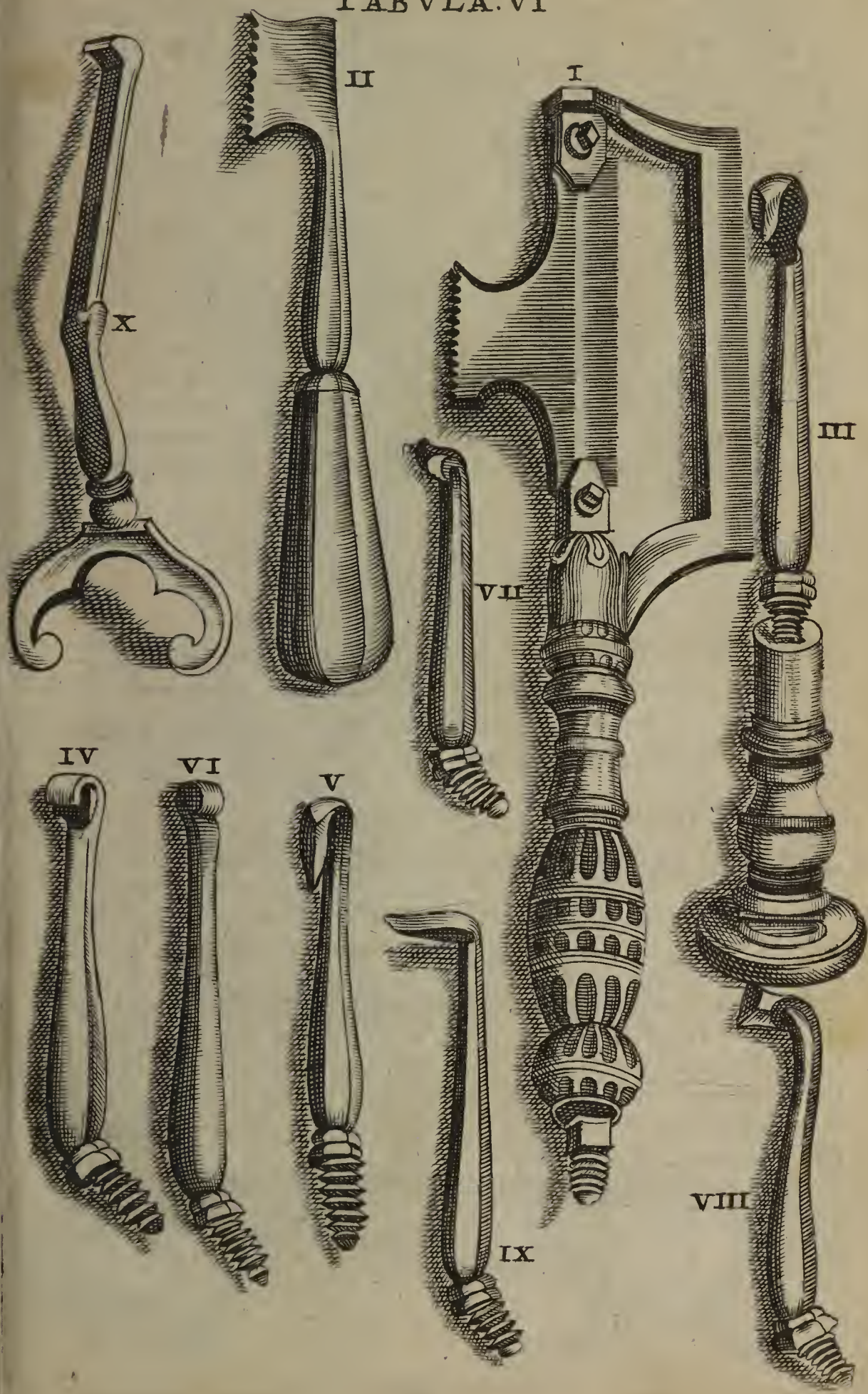
The VI. Table.

Of straight saws, and divers scraping tools, wherewith the skul being rotten, or having a fissure, is scraped away.

FIG. I. and II. are straight saws, with which some men cut away the distances between the holes made in the skul with the Tre-pans, and abolish rifts like hairs that do not penetrate, and scrape away the rottenness of the *cranium*.

Fig. III. describes three sorts of scraping tools, of *Galen lib. 6. meth. med. cap. 6.* the first is hollow which he calls *κύκλίσκος*, or a scraping instrument to cut out, the figure whereof we see above Table II. Fig. IX. another which in the lower part of it represents a lenticular, which he calls *φάκωτιν*; the use and description whereof we find in the Table newly quoted, Fig. VIII. exactly printed; the third fit to rasp away, which the Greeks call *ξύστρον*; and the Latines *scalprum rasorium*, or paring tool, and the illiterate a rasp. The modern Chyrurgians make use of this third sort of scraping instruments, in proving and scraping away the fissures of the skul as small as hairs, or for such that is doubtful whether they penetrate or not; and they have invented divers forms of it, according as the place

TABVLA.VI



place or chink may happen to fall out. As for example a hollow one, as you see Fig. III, IV, V, and VI, a half moon, as Fig. VII. sharp pointed as Fig. VIII; lastly a plain one as Fig. IX, and X. The Chyrurgian must have four scraping tools at least, of each form, alwaies ready, lest for want of them he be constrained to desire them from others; or may lose the occasion of his operation, which every man knows to be desperate to the danger of his Patient, and loss of his own reputation. When a rotten bone is to be scraped in the extreame parts, as the thigh, the shin bone, the shoulder bone, or the arm bone, greater and stronger rasping tools must be provided for them. Now every rasping instrument is made of most pure steel, that it may have an edge that will perfectly rasp away. The Ancients did fit the proper hafts to every rasping instrument; but the modern Chyrurgians take a contrary course yet, in my judgment not so right as it ought to be, for they provide but one handle of wood or bones, at the bottom whereof the hole hath a screw, wherewith it receives all the ends of the rasping tools that are turned with screws equally; as you may see clearly by Fig. III. and by the rest.

The VII. Table.

Of various instruments to make a seton in the nape of the neck; namely, four kind of Pincers with a needle, and one armed with a seton; of cauteries also, with which the hinder part of the head is burnt into.

FIG. I. is a pair of Pincers, which neer to the upper hole, which is neither too narrow nor too broad, hath a wide and circular cavity, and an iron ring, that of it self binds fast the instrument or pincers, which is then necessary when the Chyrurgian hath no servant, which may deliver to him the needle very red hot, to make a seton in the nape of the neck.

Fig. II. is a pair of Pincers which above hath the like cavity; but for want of a ring, it is not closed of it self, but by the Chyrurgian so much as it ought to be. They use these pincers when behind the neck that is to be perforated, the part is very fleshy and fat; by which the skin laid hold on, when it is thick, goes within the circle, that it cannot slip away.

Fig III.

TABVLA VII

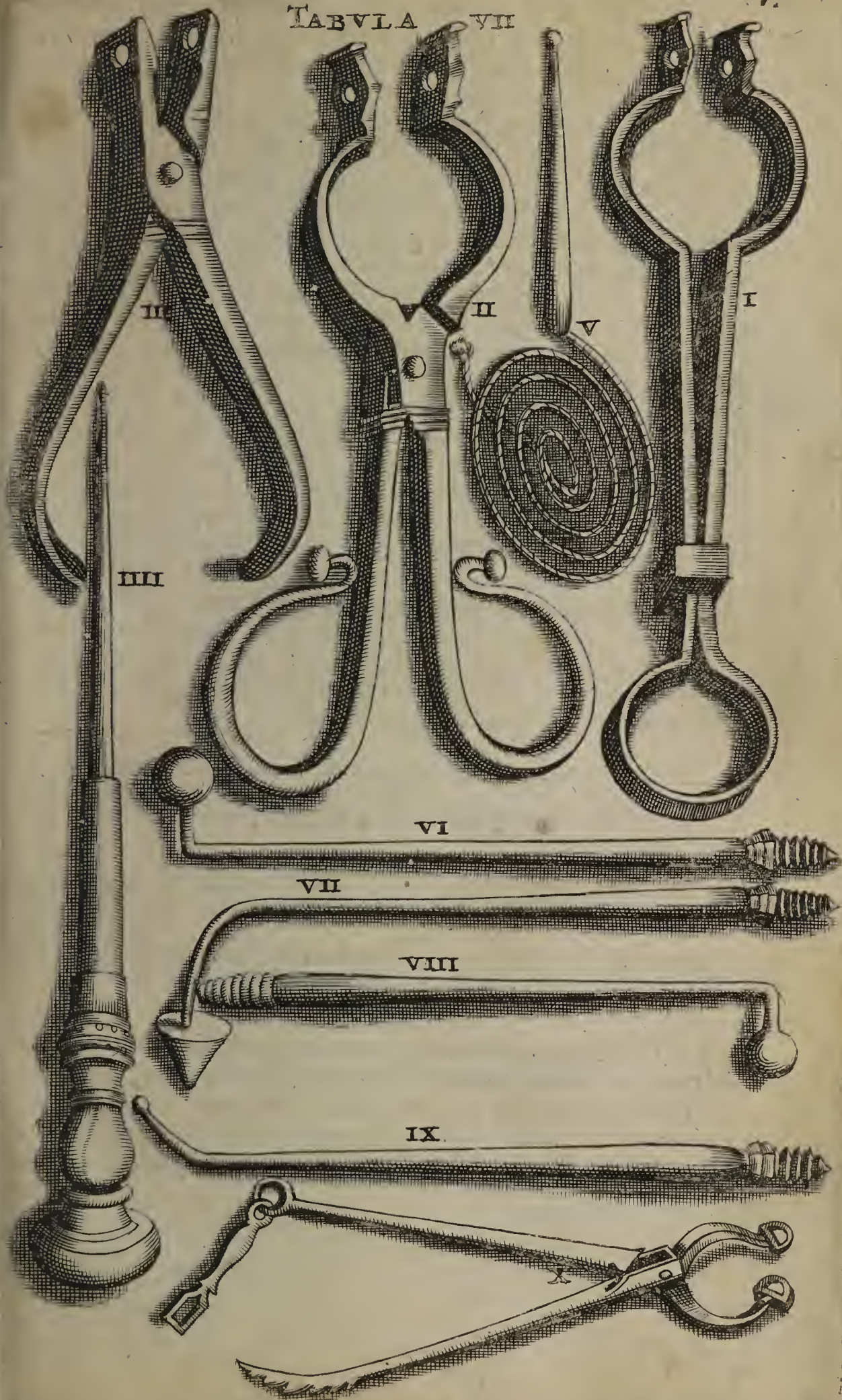


Fig. III. is a pair of Pincers, which hath neither cavity as Fig. I. and II; nor ring as Fig. II. hath; with that the Chyrurgian laies hold of lean peoples necks, untill he hath perforated them with a red hot needle delivered to him by his servant.

Fig. IV. is a needle for the seton; which must neither be too long, least the point should miss the opposite hole; but it is a hand breadth in length, neither is it very small, or gross; but it is answerable to the holes of the aforesaid pincers, only a little smaller; and so being made very red hot, it passeth through most nimbly, and makes a seton almost without pain.

Fig. V. is a long narrow point, that hath fastned to it a seton or round line, of purple silk, which draws to the middle is left in the hole; to the point is fastned a small button of wax, that it may pass through without delay or pain.

Fig. VI, VII, VIII and IX. are various iron instruments without handles; with which, being made very red hot, infants and children are burned behind the neck, in whom there appears any token of the Epilepsie, Apoplexy, or Vertigo. The same burning sometimes is a remedy for people grown in years, when they are affected with the same diseases.

Fig. X. is a pair of pincers that fastneth it self, with which the skin is laied hold on, if a seton must be made by incision: This instrument ought to be half as great again as it is here pictured; but the pen-knife answerable to these pincers, and printed at its just magnitude, is seen underneath, Table XVIII. Fig. IV; and in *Guill. Fabricius Hildanus*, Cent. 1. Obs. 40.

The VIII Table.

Of the Instrument with hair; silver needles fit to couch a cataract; the ring that holds the eye fast: Probes; the crooked Pen-knife; the sharp little hook, and the small vessel of glass to be put upon the eys.

Fig. I. is a hairy instrument, crooked; and the inside is wrapt about with cotton and black lawn; which outwardly, by reason of two buckles and latchets, hath a bolt with a broad head, wherewith the hollow ulcer in the greater canton of the eye is pressed together. *Hierom. Fabricius, ab Aquapendente*, invented this instru-

TABVLA VIII



instrument; whereof he makes mention, when he treats of Ægyptops to be cured by Chirurgery.

Fig. II. sheweth two silver needles, that are made to put down a suffusion, which are inserted into a handle of silver which is an octogon, that on both sides hath a perforated glance, or ivory head, through which the silver needles pass.

Fig. III. is that open handle, the needle whereof is inserted in one part; and on the other part, somewhat of, the screw is seen.

Fig. IV. is a needle fitted for the cure of a Cataract, with a haft and case of silver.

Fig. V. is a brazen ring (others commend one of lead) to hold the eye firm for the cutting forth of a haw; and for other operations to be perforated in the eye.

Fig. VI. is a long probe round, and made of silver, that it may be bended upon necessary occasion; the one end whereof is the broader, and the other hath a round knob very well polished. With the broad end of this probe, which *Celsus lib. 7. cap. 7. de aneyloblepharo oculorum vitio*, calls the probe toward you; not only the growing together of the eye-lids is cured, but also powders and plagets anointed with ointments are applied to wounds. The round end is used by Chirurgians, to search out the state of wounds and fistulas.

Fig. VII. is a probe made with a broad end for the aforesaid uses, and a sharp pointed screw, which is wrapt over with cotton to wipe away the filth in wounds, ulcers; but chiefly in fistulas.

Fig. VIII. is a crooked Pen-knife that cuts but upon one side, to the point whereof there is fastned a small silver knob. *Euclides Tarentinus* and *Celsus* used this knife. to part the eye-lids which were grown together with the skins of the eye.

Fig. IX. is a very sharp little hook, and at the point, by degrees, bent somewhat inward: which is most convenient both to lift up the eye-lids, and to raise up the haw in the eye.

Fig. X. is a small glass vessel for the eyes, somewhat long, and is to be made of Crystal, so that it may exactly answer to the ball of the eye; and may contain medicaments poured in by the tunnel, that they cannot run out. *Hierom Fabritius ab Aquapendente*, invented this ocular instrument, and described it more at large in his tract of suffusion, to which I refer you.

The IX. Table.

Of the right and crooked pincers for the Polypus, and the pipes that are put into the nose, with their pin; the instrument wherewith the Uvula is cut away; the spoon that is to be used when the Uvula is fallen; the dilatory to open the mouth, and the Cranes bill that is blunt.

Fig. I. is the streight instrument of Hieron. Fabritius *ab Aquapendente*, for to draw forth a Polypus; it is made of steel, and is convex outwardly, but inwardly concave, which hath an edge inwardly bent backward, wherewith we can cut nothing but the Polypus now laid hold on.

Fig. II. is a bowed instrument, wherewith the Polypus is cut and drawn forth, which by the holes of the nostrils tends in the palate to the throat, and threatens to choak a man.

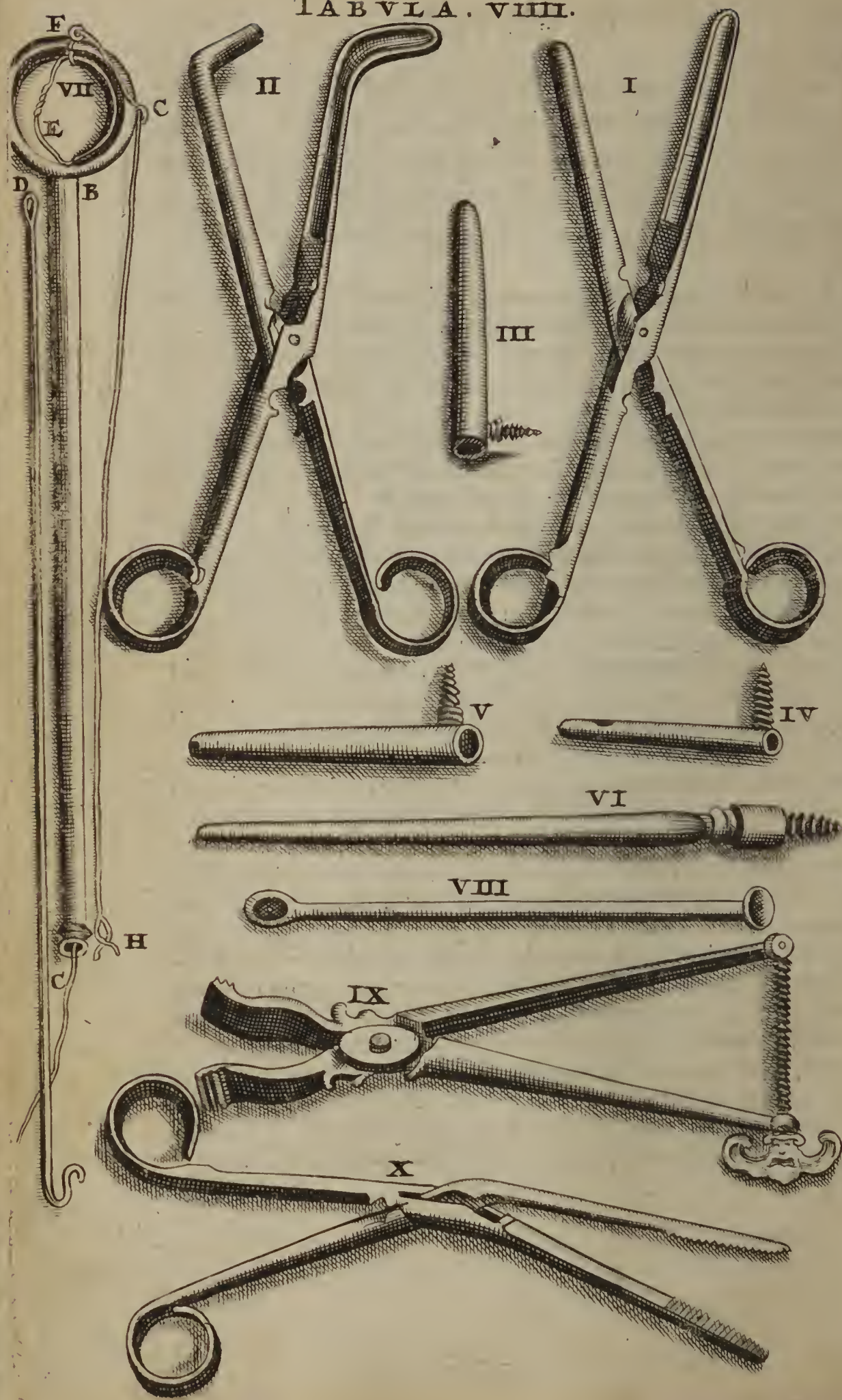
Fig. III. is a solid iron pipe, which is thrust so deep into the nostrils, that it equals the length of the ulcer, which is called *ozæna*; afterwards a very red hot iron is thrust into this pipe, that is found every where and without any holes; whereby the pipe waxeth hot, and the ulcer is dried up.

Fig. IV. is a pipe with a hole in the side, to consume the hard callous of the wound that is in the side of the nostrils, by an actual cautery, or is most convenient to dry up the bone which is corrupted.

Fig. V. is a small pipe with a hole at the top, which is put into the nostrils; when, after the cutting and drawing forth of the Polypus, the blood running forth in great abundance, must be stopped by manual operation, by burning: which is also used when the top of the nostrils must be burnt, for the removing of the bone corrupted.

Fig. VI. is a stile of iron, which being made red hot is thrust into the aforesaid pipes, and is presently drawn forth again; which thrusting it in and pulling it out, must be repeated so often as need requires. To perform this operation speedily, the Chyrurgian must have by him at least two such pins; which, being heated in their turns, he may thrust into the pipe. But note that the ocular vessel of the Table VIII. Fig. X. and these pipes that are to be put into the nostrils, could not be printed in their just magnitude; because

TABVLA. VIII.



they must be made greater or less as the age of the Patient is, and the parts affected are in greatneſs.

Fig. VII. is an instrument by which the Uvula is cut away; it is made of latten, which in the upper part hath a circle somewhat hollow, A, in the lower part the pipe B, through which the end of the thread C, (after that it is placed into a half knot turned about E, and into the concave part of the ring, that it may not remove here and there) is drawn by means of the stile D perforated above; the other end of the thread is drawn through two rings annexed to the circle, and is fastned to the lower ring of the pipe. *Guill. Fabricius Hildanus* Cent. 2. Observ. 21. was the first that found out this instrument, and described it; with which, being correct, I easily tied the Uvula of one of the Emperour's Souldiers, that was infected and corrupted with the French Pox, and I cut it off with good success, at *Vлма* June 8. in the year 1637.

Fig. VIII. is an instrument to be applied to the Uvula which is fallen; that is likewise of latten, namely a small spoon, but it must be made half so much greater as it is here set forth, whose handle must be hollow, and nine inches long, and is joined to the lower part of the spoon: This spoon is filled with powders that are drying and digesting mingled together, and it is put under the Uvula relaxed: then the Chyrurgian takes the lower end of the pipe in his mouth, and by blowing scatters the powders all about upon the Uvula and the Palate.

Fig. IX. is an instrument to open the mouth wide with a screw; and is printed out of *Paræus* his *Lib. 9. Cap. 25.* wherewith the teeth, fastned and joined forcibly together, are drawn asunder, that meat may be given to the sick, least he should perish by hunger.

Fig. X. is a Cranes bill with teeth, and directed to an obtuse angle; fit to take forth small bullets, and strange bodies, and to draw them forth of wounds.

The X. Table.

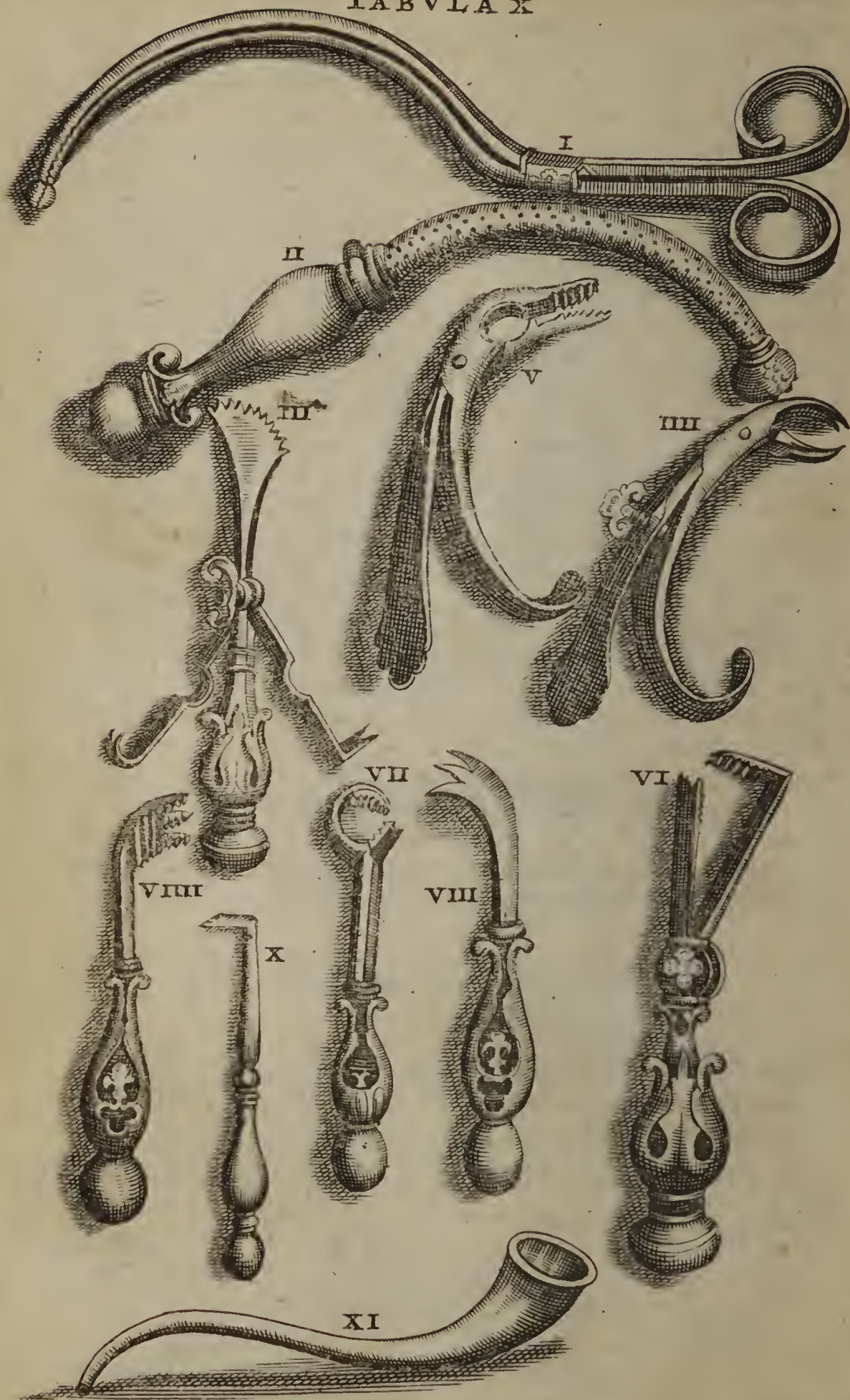
Of an instrument like to a puller; a pipe to be put into the throat; the Pellican pincers; the Crows bill; Levitors with three divisions, and of the Tunnel.

FIG. I. is an instrument to pull forth small bones in the throat; like that Table IV. Fig. I. namely a pair of pincers bended into a

B 4

femi-

TABVLA X



A semicircle with teeth, and a small button at the end; wherewith small bones, thorns, and other strange things that stick at the bottom of the throat, are wont to be taken forth. When the most famous *Hierom. Fabritius, ab Aquapendente*, makes mention of this instrument in his Chirurgery concerning the jaws, he understands some kind of instrument that is long and slender, which is twofold, one streight, shadowed forth Table IX. Fig. X. another crooked, as this is; yet both of them for their faculty of taking and drawing forth, may well deserve the name of pullers.

Fig. II. is a pipe of silver, crooked, that it may be put into the throat; it is as thick as a Swans quill, and one foot long and a half, or thereabouts: it is all full of holes, and at the end of it, it hath a sponge that is new, and as great as a small nut, firmly bound to it. Which *Guill. Fabritius Hildanus*, Cent. 1. Observ. 16. useth with happy success to draw out thorns out of the jaws, and middle of the weland pipe; where he teacheth the manner of the operation by the pipe here printed. The following iron instruments are used for hollow teeth, or such as are loose, or that are very painfull sometimes, to take them forth when people are in the most bitter pains. Whence

Fig. III. is a pair of Pincers, named a Pellican, because the beck of it is like the bill of the Pellican, a bird so called; but they use it to draw forth the grinding teeth.

Fig. IV. is a common pair of pincers for the teeth, the Italians call it *cagnolo*, because it holds as fast as a dog bites.

Fig. V. is a pair of pincers that represents a Crows bill; with which the roots of the teeth are drawn forth: Of which *Cornelius Celsus* (whom, as being admirable in all Chirurgical operations, *Fabritius ab Aquapendente* counsels us to study in both night and day) *Lib. 7: cap. 12.* concerning teeth, writes thus; as oft as when a tooth is taken forth, the root is left behind, that must forthwith be drawn out also with a pair of pincers, the Greeks call *εἰς ἄνευ.*

Fig. VI and VII. are the patterns of toothed pincers, that serve to pull out teeth, which neither the Pellican nor common pincers can draw forth.

Fig. VIII and IX, are Levitors divided in three parts, because they commonly have three spears to thrust forward and to take out the cutting teeth, and the dog teeth which are fastned in the holes of the gums with one root alone.

Fig. X,

Fig. X. is a tooth-picker, with which the gum is separated from the teeth, that they may be pulled out with less danger and trouble. That therefore the drawing out of a tooth may succeed well, observing what must be observed, place the Patient on a low place, with his head lying between the Chirurgian's legs; then the Chirurgian shall cut deep round about the tooth to be pulled out, parting the gum from it with his Tooth-cutter; and if the tooth shake when it is parted from the gum, it must be shaken, and thrust out forward with the Levitor put under it; but if it stick fast, and move not after it is shaken, it must be laied hold on with the toothed pincers, and pulled forth (sometimes this way, sometimes that, as the greatness, scituation, and figure of the tooth shall seem to require. In the use of these toothed pincers (saith *Ambros. Paræus Lib. 16. cap. 27.*) I should desire the Tooth-drawer to be very expert and industrious; for with these, unless a man be very cunning, and know the use of them, it can scarce be avoided, but that at one pull he shall bring out three teeth, and oftentimes leave that tooth unshaken that causeth the pain.

Fig. XI. is a Tunnel or a pipe of silver, whose narrower part is thrust between the outmost gum of the Patient, who hath his teeth fast shut together, and the broader end receives liquid meats and drinks and lets them down to the *œsophagus*.

The XI. Table.

Of another sort of Pincers with a Parrots and a Crows bill; of the speculum oris; of an instrument to cut away the caruncles of the mouth; and of the streight Cranes bill.

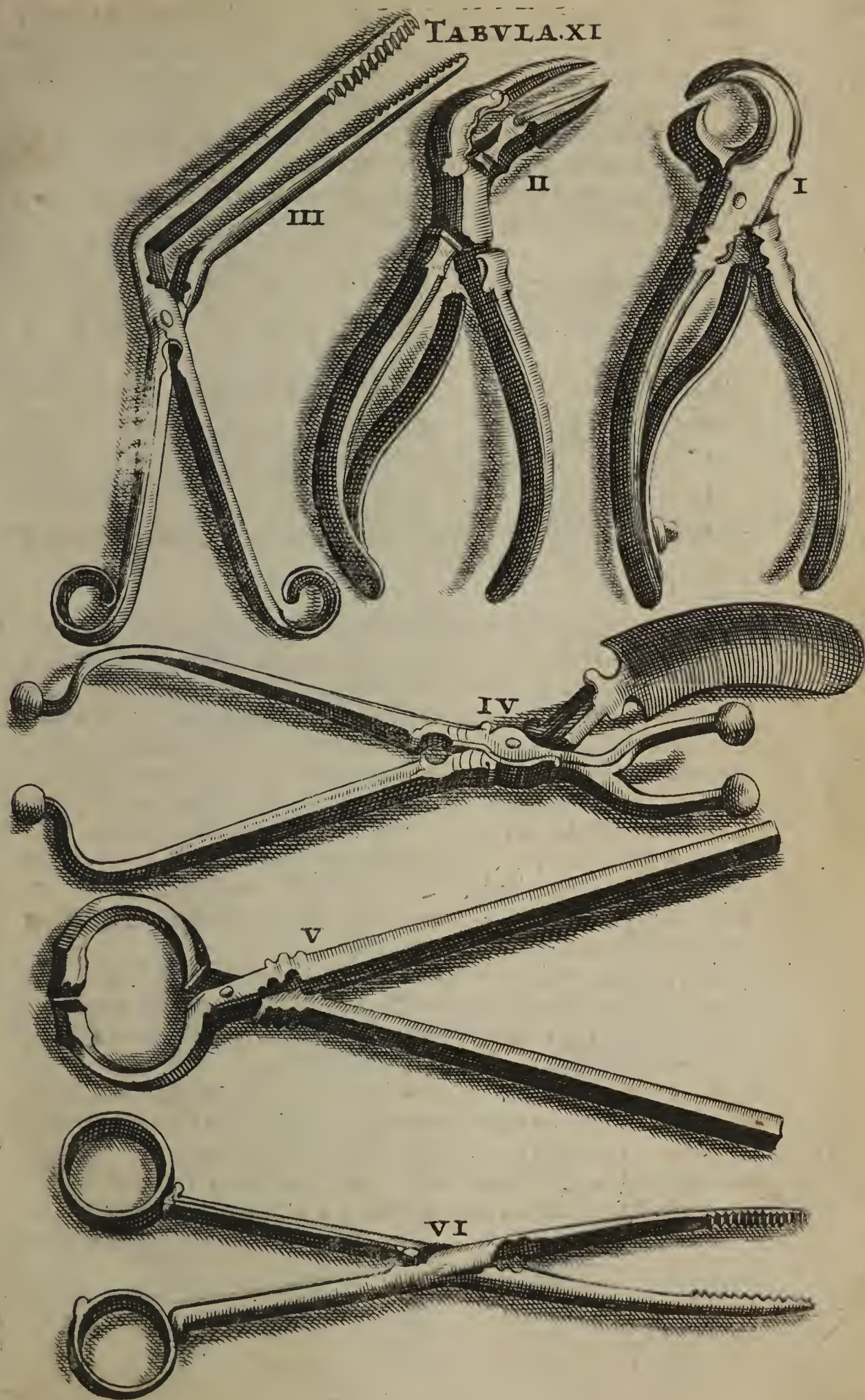
FIG. I. is another pair of pincers with a Parrots bill, which we use in fractures of the skul, when a splint of the bone that must be taken away, either presseth or pricketh down the membranes of the brain.

Fig. II. is an instrument with a Crows bill made artificially for the same end. Yet note that both these pincers must be made a third part greater then they are here described.

Fig. III. what instrument this is, is manifest by Table IX. and Figur. X,

Fig. IV. is called *speculum oris*, wherewith the tongue and lower chap is pressed down, that the diseases of the mouth may be seen exact-

TABVLA.XI



exactly, and handled with convenient instruments and medicines. But it was chiefly made to preserve the teeth of furious and astonished men, drawn asunder untill such time as they have swallowed down meat and drink sufficient.

Fig. V. is an incision instrument like to pincers, with which are cut forth tumors. and caruncles of the mouth.

Fig. VI. is a pair of pincers with a Cranes bill, toothed and streight, which may serve instead of a puller.

The XII. Table.

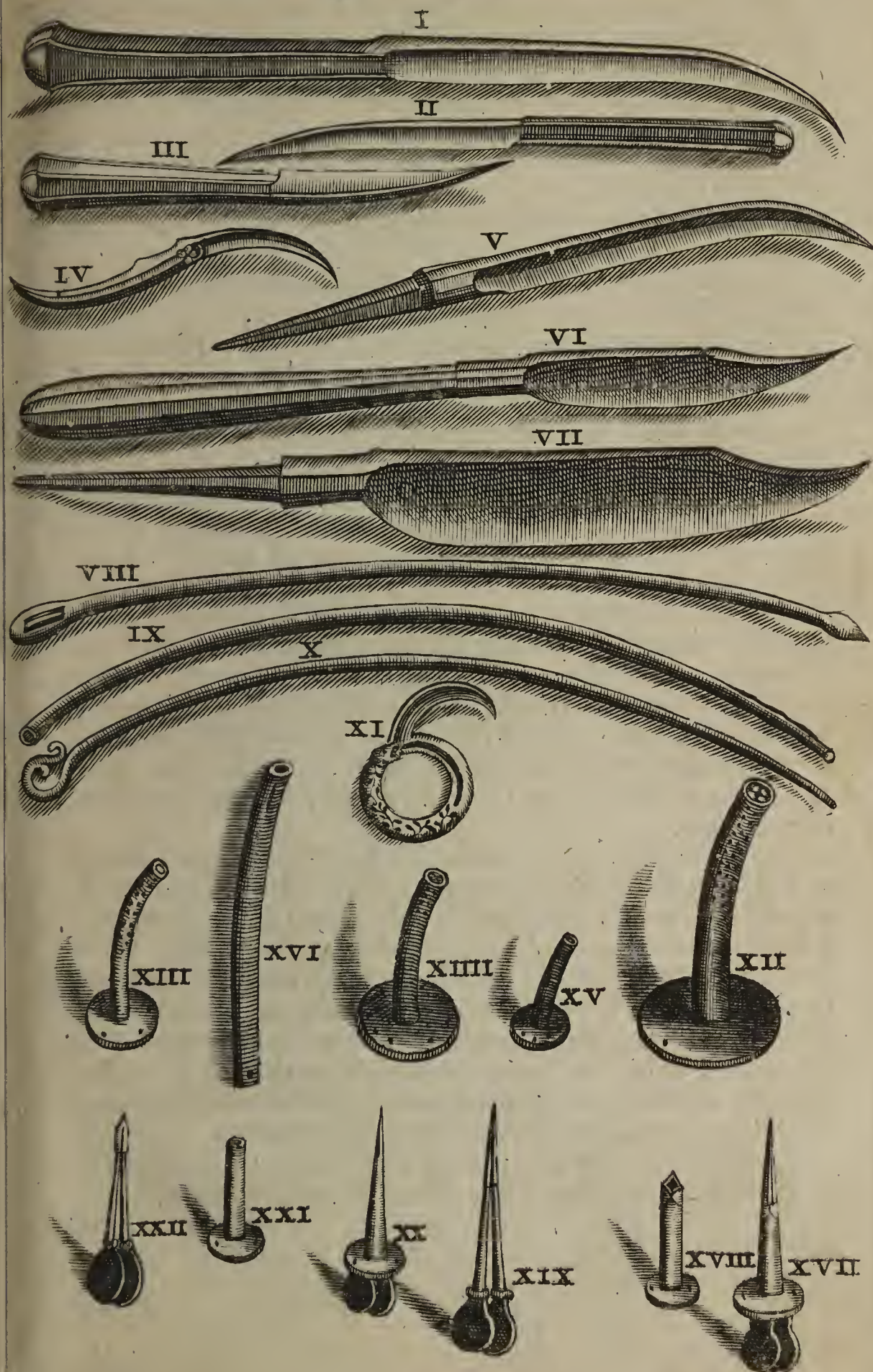
Of crooked knives; a knife with two edges; a very long needle; a golden syringe; the Pen-knife with a ring; of pipes with shoulders, and holes through; a golden pipe to be thrust into the Urinary passage; and instruments wherewith the belly and scrotum of hydropical persons is opened.

FIG. I. is a little Pen knife, called by the Greeks Σκολοπαυχαίειον, from the bill of that bird which the Latines call *Galinago*, a Woodcock, in Greek Σηλόπιξ, because the instrument is long and somewhat crooked at the end like a Woodcock's bill; with this incision knife wounds of the Thorax that are too narrow are dilated, and great impostumations are opened. *Fabritius ab Aquapendente*, commends the same for opening the Abdomen of hydropical persons under the navel, to let forth the water. *Note*, that this Pen-knife, for the opening of wounds of the Thorax, requires a small button, (like to that the Pen knife hath of silver, Table VIII. Fig. VIII.) of iron at the point, for fear the lungs should be offended with the point of the knife.

Fig. II. and III. are Pen-knives crooked at the point, and like to the Woodcock's bill knife of the Greeks, wherewith mean *Fistulae* in the habit of the body are conveniently cut; whence also they are called usually σφρηγιστήριον.

Fig. IV. is a crooked Pen-knife, which the Italians call *gam-maut*; and it cuts on the hollow side, and is blunt on the convex side of it. I use this most frequently for all incisions which is commonly made in every impostume; but principally in small incisions. This knife hath a haft of bone, which is convenient for to divide

TABVLA XII.



divide and separate any thing from another: Whence it is that *Celsus lib. 7. cap. 16. de tumoribus tunicatis*, saith, then with the handle of the knife, the coat (which after the cutting of the skin presently shews it self white and stretched out) is to be drawn away from the skin and flesh, and to be cut away with that it contains in it: With this also is the *Pericranium* parted from the skul, and the haw from the eie.

Fig. V. is a Woodcock's bill without a handle.

Fig. VI. and VII. are double knives, which at the end resemble the fashion of mirtle leaves; we use them to cut off womens breasts that are cancerated.

Fig. VIII. is a most sharp needle, long and double; wherewith breasts to be cut off are pierced through at the root.

Fig. IX. is a pipe made of gold of Hungarie, and perforated with many holes.

Fig. X. is a stile made of the same mettle, which is thrust into the former pipe, that of them both, one instrument may be made, which in the wounds of the Thorax is profitably applied for a syringe, and draws blood out of the Thorax which is not congealed, or thin corruption. This instrument is dactile, and may be bent into a right or oblique angle, and may be thrust into the Thorax, where there is a wound made of purpose, or by accident; that it may reach the blood not congealed, or the thin corruption. Let the Chirurgian draw forth the pin out of the pipe, and presentlie the matter contained in the Thorax will run forth. This way to draw thin matter out of the Thorax succeeds excellent well; where, by reason of debility of forces, or some other cause that hinders it, we may not make incision between the fift and sixt rib, according to *Paulus*; or between the third and fourth, according to *Hippocrates* his rule.

Fig. XI. is that crooked knife which may be hid in a golden ring; with this Apostems are cut in the face or cheeks of children; and in the breasts of timorous women; lest seeing the knife they should be frightened, and so not suffer the impostume to be opened.

Fig. XII, XIII, XIV and XV. are pipes with shoulders, and perforated with many holes, that they may hold the wounds of the Thorax open; they are made with shoulders, lest being put into the wound, whilst the Patient breaths, they should go into the Thorax; and they have so many holes, that by it through them all, as need requires, the foul matter may issue forth.

Fig. XVI. is a pipe made of the gold of Hungarie, which is thrust into the Urinarie passage, before the making of water, that
the

the Urine may come forth by it; and so that most cruel pain and heat may be abated, which the Patients feel when they make water without the pipe, by reason of an ulcer grown in the Urinary passage, from a virulent *Gonorrhæa*.

Fig. XVII. is an instrument that consists of a needle with three points (*a*) and the pipe with shoulders (*b*) with which the navel of hydropical persons, and the scrotum in a watry hernia are opened to let out the water. This instrument is thrust in as far as the asterisk upon the pipe; after that the needle is drawn out, and the small pipe thrust in as far as the shoulder, is left in the abdomen without all fear or danger.

Fig. XVIII. is the small pipe alone, and printed without the needle.

Fig. XIX. is the needle alone, set without the pipe.

Fig. XX. is a round needle with its small pipe; wherewith, for want of a needle with three points, the navel of hydropical persons is perforated with the like safety; and so is the scrotum of such as have hernias filled with water.

Fig. XXI. is the pipe of the round needle by it self.

Fig. XXII. is the round needle alone.

The XIII. Table.

Of the Syringe with a right pipe, and crooked pipe, one for the matrix, and one for the ears; a glister pipe; the silver cap, and wax candles.

FIG. I. is a syringe to draw out, or to squirt any thing in, often usefull; that which hath this crooked pipe join'd to it, may receive the streight pipe Fig. II. when the crooked is not convenient to draw forth or cast in any thing.

Sometimes to this syringe there is fitted a pipe Fig. III. that hath many holes perforated in it; which the Greeks, and *Galen lib. 9. de compos. medicam. sec. loc. cap. 8.* and *lib. 5. meth. med. cap. 4.* call *Metrenchytam*; women that will not easily give way to others, for shame, to cast a clyster into their matrix, conveniently use this instrument; wherewith they can easily inject divers liquors to cure divers affections of the womb, and the cause of it.

Fig. IV.

TABVLA XIII

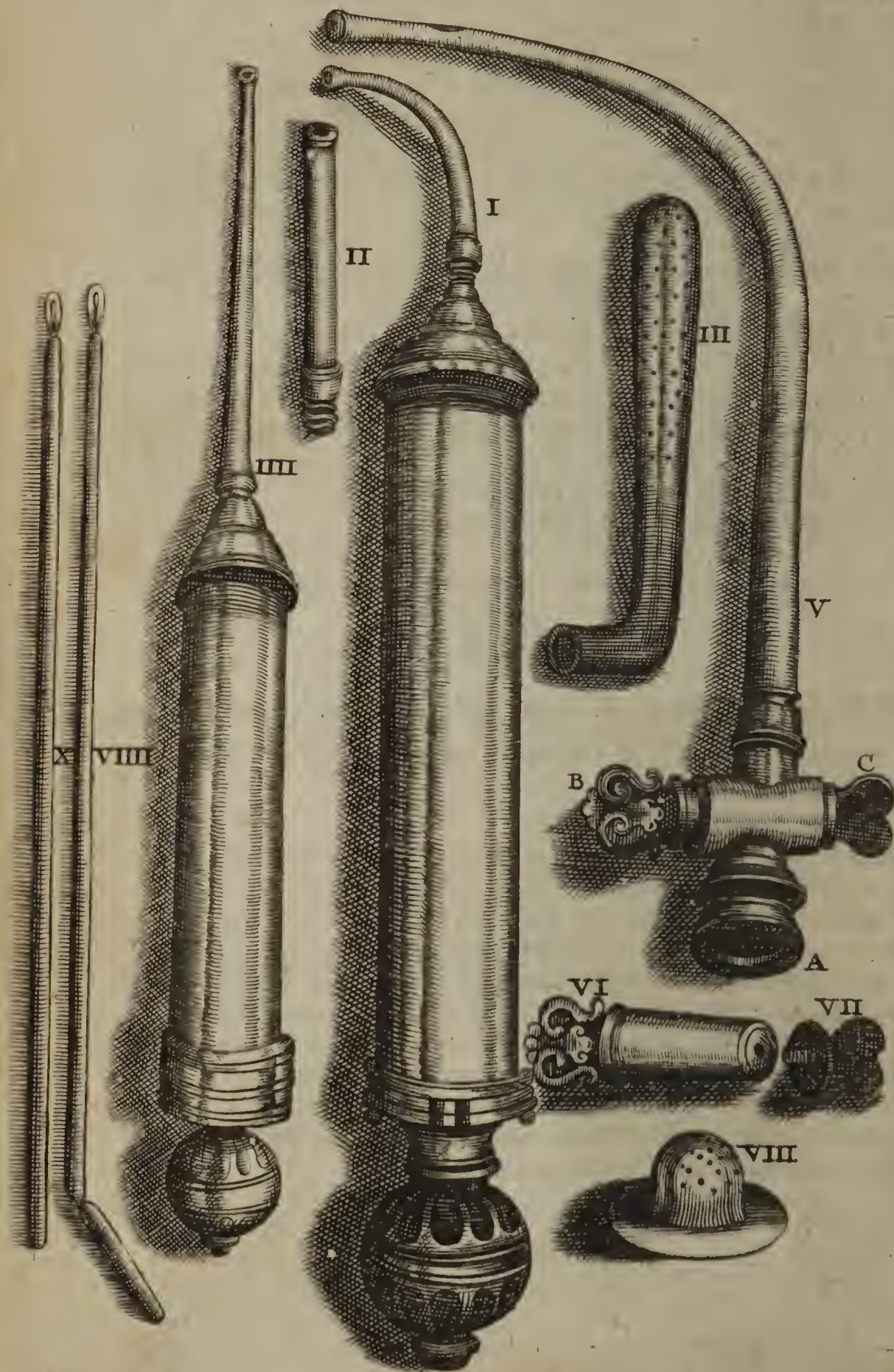


Fig. IV. is an ear Syringe, called *Otenchyta*, whereby liquors are injected into the organs of hearing, to cleanse and heal ulcers there.

Fig. V. is called *Enterenchyta*, namely a pipe of latten crooked like to a Catheter; which let them care to provide, who would rather give themselves a clyster, than receive it from any one else; especially if often use of clysters be needfull; by reason of the diseases of the guts; especially of the right gut.

Fig. VI. is the lock of the said crooked pipe B, Fig. V. by help whereof the liquor of the clyster in the bladder, which about the letter A Fig. V. is to be tied after the vulgar manner, is held so long as the Patient pleases, as he will open or shut the pipe.

Fig. VII. is a nail with a broad head (c) Fig. V. which is screwed into the lock B, Fig. V. that nothing of the clyster, in turning the key about, may run forth, which may foul the sheets. This instrument, as it appears to any man, differs much from that which *Iohan. Heurnius* in his method *ad praxin medicam*, Cap. *De Clystere*; and *Guill. Fabricius Hildanus Cent. 1. Observ. 78.* caused to be printed for to inject clysters into the belly.

Fig. VIII. is a silver cap and full of holes, which is applied to the ulcerated nipples of the breasts, that nurses may suckle the infant without any trouble. This cap is also used for wounds of the Thorax; for after that any one of the aforesaid pipes hath been thrust into the Thorax, and a piece of sponge is put into the orifice of the pipe near the shoulder; this cap is put upon it that the matter, almost every moment, may sweat through the holes of it by degrees, and without any loss of strength.

Fig. IX and X. are candles made of strong double thread and white wax (to which a little Turpentine is added, that they may not break so soon) and these are to be ready for use when the urine is stopped by a caruncle in the urinary passage, which must be cured. The candle Fig. IX. is broken, lest in the drawing forth of the candle, some piece of wax, which sometimes hath no wick in the middle, should be left in the passage, and thereby the difficulty of making water could be greater. Wherefore the Chyrurgian shall cut off, with his pincers, that part which is broken at the end of the candle; and then he shall thrust into the urinary passage the said candle, so far as need shall require, first anointing it with oyl of sweet almonds.

TABVLA XIV



The XIV. Table.

Of Syringotomi, and the needle wherewith the scrotum is perforated after the cutting of a Hernia (used at Nursia) and the bottom of a more sloping fistula; of the catheter, the directory, and two instruments wherewith bullets are taken forth of wounds made with gun shot.

FIG. I. is a crooked knife, which upon the inside (a) hath an edge, and on the outside (b) it is blunt, namely a *Syringotomus*; which at one end (c) pricks and cuts; this we use in any fistula that hath but one passage, that the end of the fistula may be perforated; and afterwards the space between one hole and another may be cut asunder; at the point hereof we must fasten a button made of white wax, wherewith the pen-knife thrust into the fistula may come to the bottom, without any hindrance, pain or hurt.

Fig. II and III. are pen-knives to cut fistulae; both of which are blunt at one end, and have a bullet of iron well polished at the other end. With these the whole passage of deep fistulae are to be cut.

Fig. IV. is a knife to cut fistulae, wherewith the wounds of the abdomen are dilated, that the intestines slip down and swollen with winds may be commodiously thrust back again. It hath a button at one end far greater than the two former knives have, lest being thrust into the wound it should hurt the intestines.

Fig. V. is a needle, or iron instrument, with a double edge; which they of *Nursia*, in my time in *Italy*, in this part of Chirurgery (which cures Hernias with cutting forth the testicle) being excellent well skilled, and in that respect the most famous gelders, thrust the wound of the groin to the bottom of the scrotum; which with the point of the instrument (to which alwaies men ought to fasten a small button of white wax, for the reason above said) they perforate; whereby the corrupt matter, which by the wound of the groin descends to the scrotum, may be purged forth. This operation because it is fearful enough, and is not without the greatest danger of life (which the Authors of it knew well; and therefore they take on those they would cure, but as dead men.) I will open to such that are studious of Chyrurgery, another use of this instrument which is very safe. Namely, with this are cut the sloping ends of sinuous ulcers, for which cause fistulae cannot be cleansed,

unless the Patient be so situated that his head be downwards and his heels upwards, and the corruption may run forth of its own motion. For it is known that such hollow sores which have not yet contracted a callous, whereof also we here speak, can be cured only by glutinative medicaments, and convenient ligature. So the matter collected in the hollow sinews may find a daily passage out. But since that situation with the heels upward and head downward is troublesome enough, with this instrument, to whose sharp end a small button of wax must be fastened, the bottom of the hollow ulcer is perforated (leaving the partition between the holes untouched) that the matter may run forth by the lower hole, and the partitions between the sinuous ulcers may be glutinated.

Fig. VI. is a Catheter or a Probe; by which, being thrust into the passage of the yard, and into the bladder, we prove the innermost turnings of the bladder, wherein the stone useth to lie hid, wherewith oftentimes man's nature is tormented. The Greeks call it *καθετήρ*; and it is used to make the urine come forth when it is stopped. It is made of silver that it may be bent, and it is free from all roughness, lest the part that is most exquisite in feeling, should be affected with the Catheter in the passage, and that it may enter into the bladder without pain: it is perforated with many holes at the end, that the pin being drawn back, the urine contained in the bladder may freely come forth by the pipe without any difficulty. Note that the pin is not thrust into the pipe, that as it were by force of vacuum it might draw after it the urine suppressed, but that the urine should not presently run forth, whilest the cutter for the stone, or the Physician seeks after the stone that lies hid. *Celsus* describes the magnitude of the Catheter, lib. 7. cap. 26. see Table XXXIX. Fig. IX.

Fig. VII. is a silver Probe which must be so bent, that its fissure which it hath in the middle, as far as the end of it, may be on the back side or gibbous part thereof: The Latines call it a *Director*; because, being thrust into the yard, it doth most exactly shew the neck of the bladder; and upon that must incision be made to take the stone out of the bladder.

Fig. VIII. is a latten instrument, wherewith the stone is taken forth which remains in the urinary passage; namely a Probe, which on that part where it is made hollow like a spoon for the ears, is put into the conduit of the yard, so that it may pass beyond the small stone above it, and may lay hold on it with its lip and concavity:

cavity: this being done, oyl of sweet almonds is poured through the hollow passage of the pin of the Probe, which hath a large orifice, into the Urinary passage, that it may become slippery; afterwards the Probe is gently drawn forth, and the conduit is pressed behind the stone with the finger, untill it be driven forth of the Urinary passage.

Fig. IX. is an instrument the most fit to take forth bullets out of a wound. It is made of the best steel, and it consists of three parts; namely, of two small pipes and a piercer. The outward pipe (*a*) can shut in the innermost pipe; which at one end is divided into two spoons of iron (*b*) that it may fasten the bullet, that it may not turn about with the piercer, which must be fastned into it. The Piercer (*c*) is most sharp and somewhat longer than its two pipes; which by the hole of the handle (*d*) may be seen to be thrust into the pipe.

Fig. X. is a Piercer printed without its pipes.

Fig. XI. is the same instrument with the former; (but that it wants a Piercer) wherewith bullets are drawn forth; it consists of two parts of the pipe (*a*) and the stile (*b*) which is solid; which at the other end is divided into two spoons which may take in the bullet betwixt them. This instrument doth the very same, that the instrument of *Alphonfus* in the following Table doth.

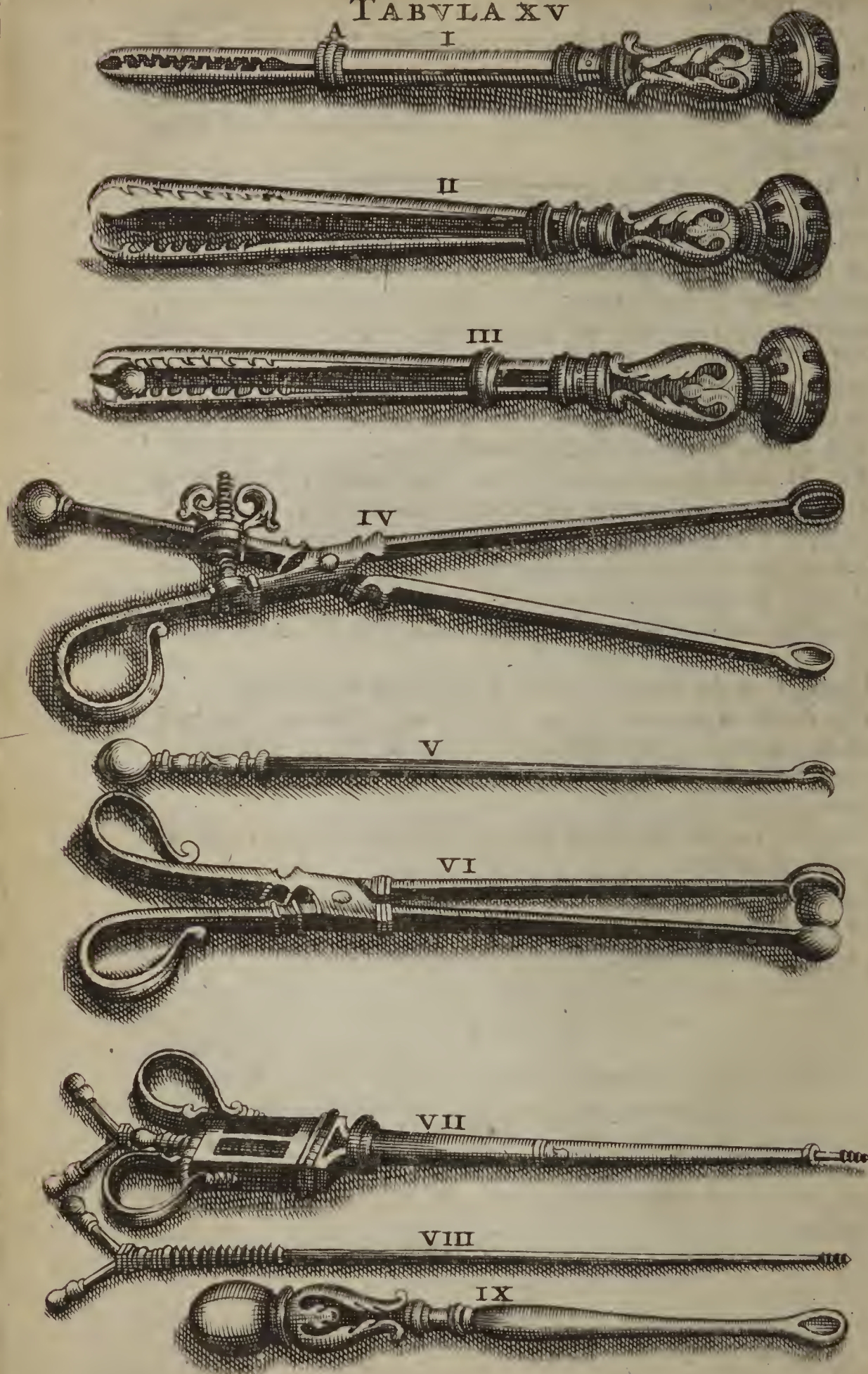
Fig. XII. is the pipe of the precedent instrument by itself.

Fig. XIII. is the stile of the instrument which is solid half way; and at one end representing the form of spoons with teeth; at the other end like screws, that are bossed with a hilt and a button.

Fig. XIV. is the hilt of the stile, with its little button, which is round and hollow.

Fig. IX, X, XI, XII, XIII, XIV. of this Table, must be made a third part greater than they are here printed.

TABVLA XV



The XV. Table.

Of other iron instruments fit to take out musket bullets; namely, *Alphonfus's instrument*; the *Goose bill pincers*, with and without a screw; the *little hook*; the *piercer with a pipe*; and the *spatula which represents a Goose bill*.

FIG. I, II and III. is an instrument called an *Alphonfine*, made fit to take out bullets out of wounds; which *Alphonfus Terrius*, a Physitian of Naples, *Lib. 2. de vulner sclopet. cap. 3.* describes in these words. Yet that instrument which men call the *Cranes-bill*, must not be forgotten, for that it is also an excellent instrument to draw forth any thing, and commended by all both old and new Chyrurgians; wherewith not only small bullets are taken out of the most difficult places, but also pieces of Armour, and many other things. To this we (that it may be more commodiously and firmly held in the hand, and so bullets and other strange things in wounds may be found out more certainly) have added rings for pincers, after this fashion. The ring A of the first Figure, thrust to the former part of it, shuts the instrument; the ring B of the second Figure being drawn back to the handle, the instrument is opened. The third Figure is the instrument which now holds the bullet.

The Figures of the following instruments, are taken forth of the Treatise of *Barthol. Maggius*, concerning the cure of wounds made by bullets from great and small guns.

Fig. IV. is a pair of pincers with a *Goose-bill*, which hath a screw about the handle, that it may lay fast hold of the bullet.

Fig. V. is a little iron hook which serveth to bring forth bullets.

Fig. VI. is a pair of pincers with a *Goose-bill*, which if it had a screw were like to the former.

Fig. VII. is a most sharp piercer, in its pipe, with which gunshot are taken forth.

Fig. VIII. is the piercer without the pipe.

Fig. IX. is a spatula with a *Goose-bill*; provided to receive and take forth small bullets.

The *Alphonfine* instrument and *Goose-bill* pincers, must be made a third part greater; but the pipe with the piercer must be as

great again. *Ambros. Paræus* in his Chyrurgery hath described more instruments to the life, where he treats of wounds by gunshot; but they are not better for these purposes: and so hath *Guill. Fabricius Hildanus*, *Cent. I. Observat. LXXXIX.* Wherefore there are divers sorts of instruments that are good to take out bullets from the wounded parts, according to the variety of the wound, and the fashion of the body that must be taken out: whereof some lay hold and draw out, either as they are sharp and so only stuck into the bullets (Fig. VIII.) or as they are dented at the end; and some are streight (Table IV. Figure I. Table IX. Figure VI. and in this Table Figure I.) and others are crooked (Table IX. Figure X.) to be used as the bullet went in streight or crookedly; some take and receive the bullet in, as they are broader and hollow at the end; (Figure IV, V, VI and IX.) others lay hold and take it in together (Table XIV. Fig. IX.) But if the bullet found by the Probe must be drawn forth by a pair of Pincers, principal care must be had that the lips of the wound, and the inward parts of it (namely the Arteries, Veins, Nerves and Tendons) be not hurt nor laid hold of: for if this be done most cruel pains, and great inflammations, with great danger of life, are produced; besides a most fearfull flux of blood following. Wherefore to prevent such symptoms, let the Pincers never be opened, unless you feel the bullet at the end of it; for then must the Pincers be opened, and the bullet laid hold on by them, and pulled forth.

The XVI Table.

Of the Pipe that is all solid; and of Pipes that have holes on the sides; and of their stile, wherewith being put in: the Anus, the Hemerods and Ulcers of the right gut are burnt and dried up; of the glass also by which the nipples, hid in the breasts, are drawn out.

FIG. I. is an instrument fit to dry up the Hemerods within, that either swell or superficially exulcerate the intestine; namely, a small iron pipe, which is put up into the fundament; it hath shoulders, and is shut at bottom, lest the red hot iron (Fig. IV.) which is frequently put in and drawn out of the hollow of the pipe, should go in higher then it ought to do.

Fig. II.

TABVLA XVI

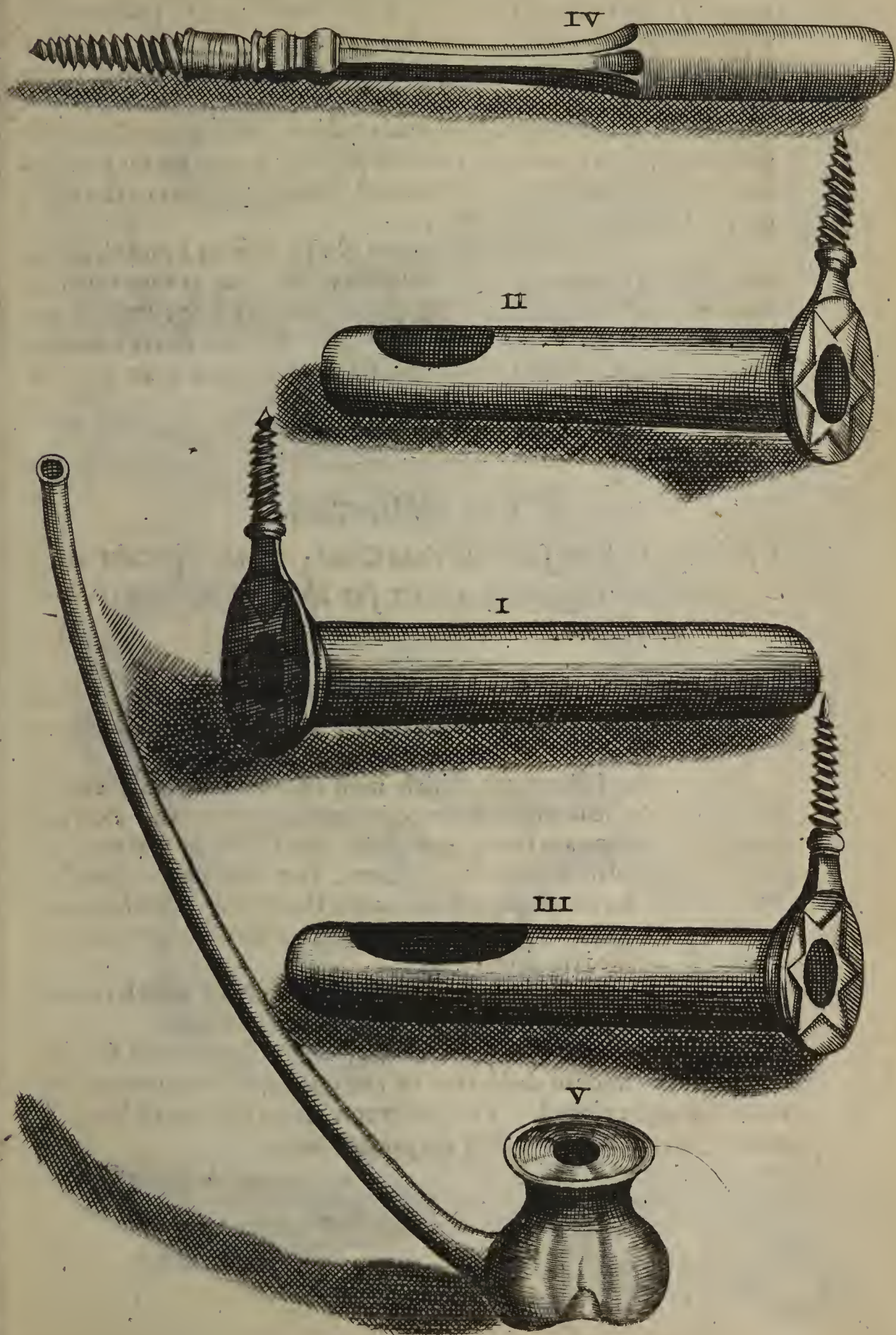


Fig. II and III. are pipes also to thrust into the fundament, but they are perforated on the side (according to the situation of a callous and deep ulcer, which will not yeeld to topical medicaments; into these is thrust a red hot iron Fig. IV.) with these pipes the sound parts are defended from the immediate touch of the fire, that only the ulcer most safely may be touched twice or thrice with a red hot iron.

Fig. IV. is the stile which is made red hot, and is thrust into the perforated pipes; and into the solid pipe also to dry up the internal Emroids, and those that are swoln; and to cure the ulcers of the right gut, be they superficial or deep.

Fig. V. is a hollow, long, narrow glass, having a mouth at one end, which is as great as to receive the nipple; but at the other end it hath a small hole with a long pipe; wherewith the Patient herself, by sucking, draws forth her nipple that lies secret, so that the infant may lay hold of it with its mouth, and draw out the mothers milk.

The XVII. Table.

Of a crook to draw forth the dead Child; of the specula ani; speculum matricis; circles for the womb, and the deceitfull pincers.

FIG. I. is an instrument with two crooks, wherewith the dead child is drawn forth of the womb, either whole, or cut in pieces.

Fig. II. is an instrument which men call *speculum ani*, and of the sheath of the matrix; because by means hereof the ulcers of the right intestine are seen, and of the sheath of the matrix: To know the quantity and quality of them, that part of the *speculum* marked with A, which is open and called the male, is used for men; but the part that is shut and marked with B, is used for women, and is therefore called the female.

Fig. III. shews the same *speculum*, and that part which is used for men is shut, and the other part for women is open.

Fig. IV. is a great *speculum matricis*, which is only used for women, when the dead child is to be cut out, or some ulcer of the matrix must be viewed. These instruments for sight must be made a third part greater then they are printed here.

Fig. V.

TABVLA XVII

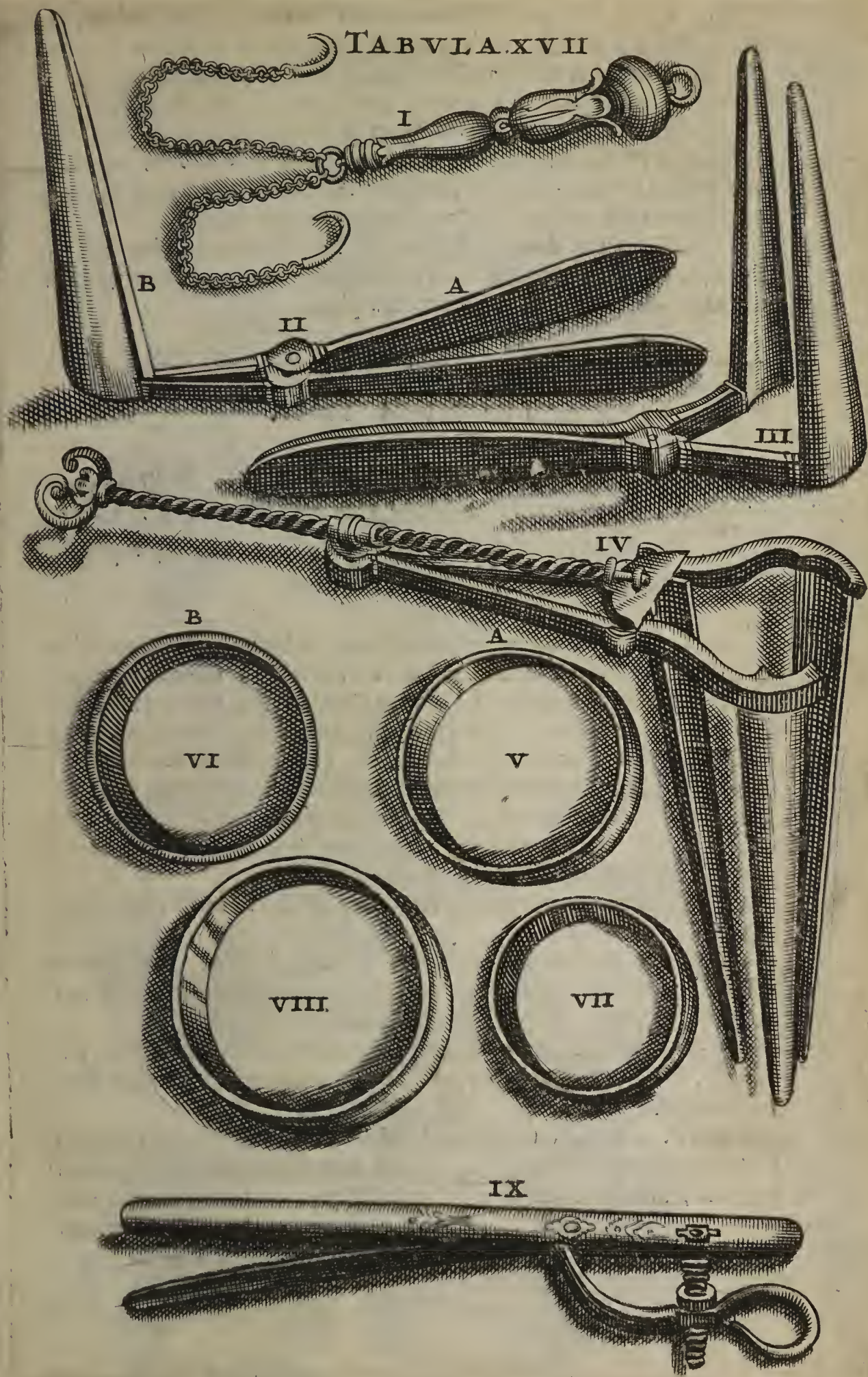


Fig. V, VI, VII and VIII. are circles for the matrix, which are made of box; which after the womb fallen down is put back again, are thrust into the sheath, that the womb may not fall down any more. On the part A that they look inward with, they are something copped; but on the other part B they are blunt. The Chyrurgian or Physitian must have alwaies ready at least four rings for the matrix, which must differ only in magnitude, that he may use them as the neck of the matrix is greater or smaller.

Fig. IX. is the deceitfull Pincer; which if it deceive not the Patient, yet it will deceive the Chyrurgian, as it was the opinion of the Ancients, in dilating of hollow places.

The XVIII Table.

Of instruments whereby the foot contracted, is by degrees stretched out again; and the elbow grown stiff, is bent by little and little; the artery of the wrist wounded, is pressed together; and a seton is cut in the neck.

FIG. I. is an instrument made of iron, which must be applied to the knee that is crooked and drawn together, which consists of divers parts; namely of the iron Capsula A, which the screw B passes by, and it is fastned to a ring made of a plate of iron, so broad that it may cover the whole knee C; with the latches D, that it may be shut and opened; with holes in the outside E, that it may be drawn back with the cotton and lint; and last of all with an iron key F, by the means whereof the iron ring may be drawn too, and the leg comes into a right posture.

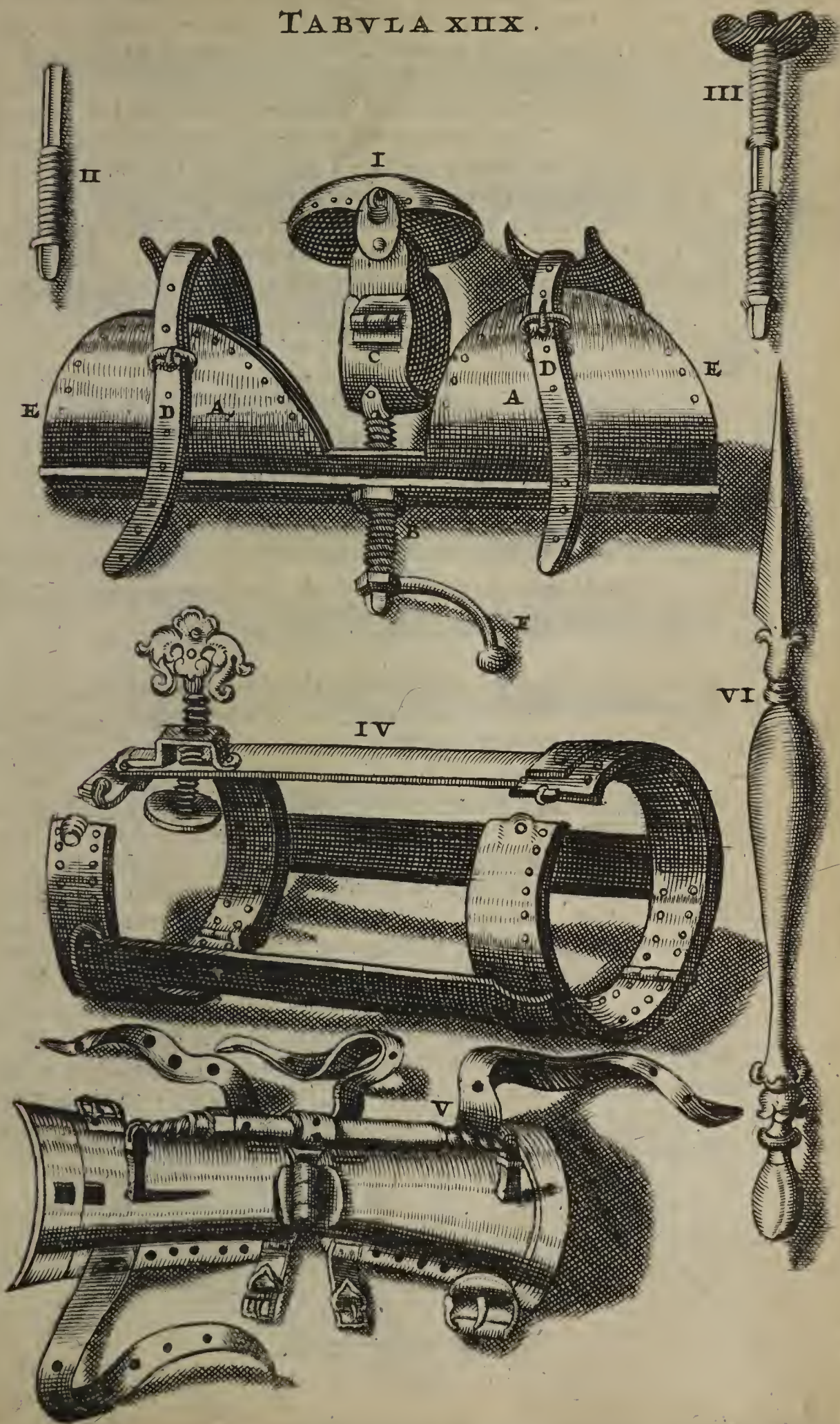
Fig. II. is the inferiour and half part of the screw B, set forth Figure I.

Fig. III. is the screw B of Fig. I. out of its place, consisting of two parts; of which the upper part (a) after attraction is left fast in the ring; the other part (b) is drawn forth.

This instrument differs not a little from that which Guilielm. Fabricius Hildanus, in his little book de combustionibus, writes that he invented.

Fig. IV. is an instrument made of divers plates of iron, and perforated with very many holes, that it may be applied with cotton and lint, and fitted to the arm like a sleeve, and may be shut and opened.

TABVLA XIX.



opened. The artery of the wrist is pressed together with a screw having a broad head, which this instrument is made with, be it open of purpose or by accident, that the Patient may not pour forth his life with his blood.

Fig. V. is an iron instrument which we use when the arm cannot be bent. This instrument is bended by degrees, by means of a screw. The instruments of this Table, Fig. I. IV and V. must be prepared after the proportion of the part affected.

Fig. IV. is a pen knife with two edges, and resembling the form of a mirtle leaf, wherewith a seton is cut in the neck; the pincers of this knife is pictured and described before Table VII. Fig. X.

The XIX Table.

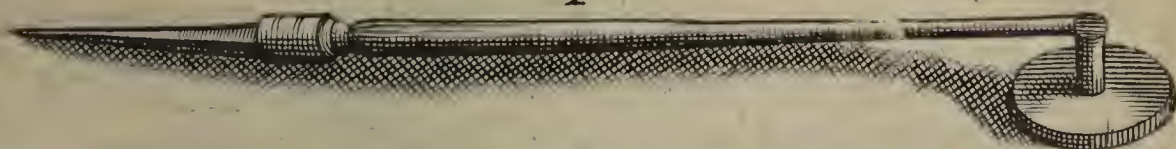
Of divers sorts of iron instruments; with which, being made red hot, divers parts of the body are cauterised for divers causes; and of a small Lancet to cut the vessels, and to open impostumations in the skin, and to perforate into the passages of the fundament, yard, and preputium that are shut.

Fig. I and II. are iron instruments that are blunt and broad at the upper end; with which, being red hot, not only strange fluxes of blood are stopped, after the amputation of a breast, or a sphacelated part; but also the part remaining is corroborated, that it may receive no new flux of humours to it. Anno 1635. in the time of the Plague, a certain Senatour of Ulma, who is yet alive, was tormented about the fundament with a pestilent carbuncle, which was great and black, which sinking into the inward parts quite vanished away, and it threatned certain death: To draw back this carbuncle, I applied the instruments Fig. I and II. very well fired by course, near the fundament, that it might not be exasperated by the touch of them; but might only feel the force of the fire, that the Patient might well indure it, whereby the carbuncle might be drawn forth again; when I had drawn it forth, I made an eschar there, with the iron instrument Fig. III. following; to make the eschar fall, I applied a cataplasma that in two daies time made a separation of it:

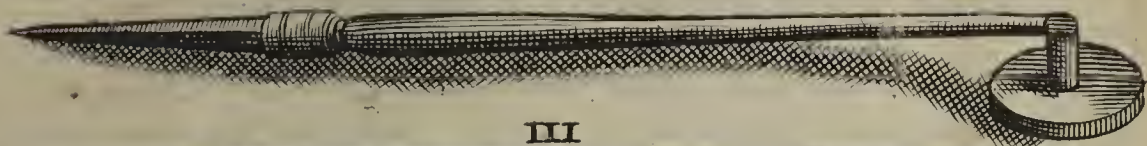
Take

TAB XIX

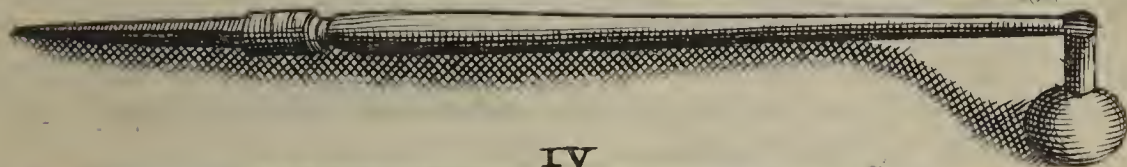
I



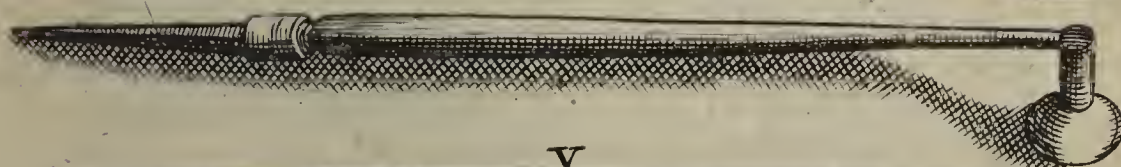
II



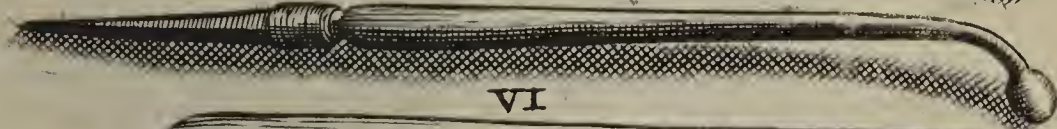
III



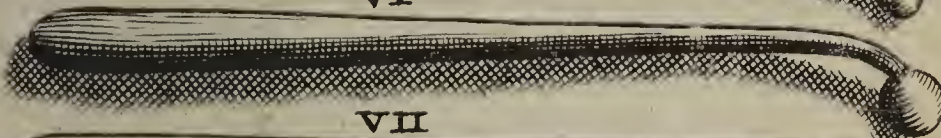
IV



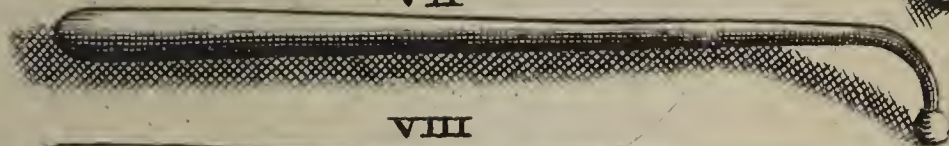
V



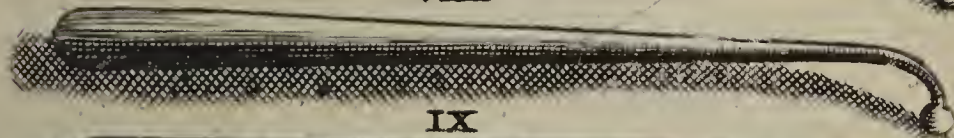
VI



VII



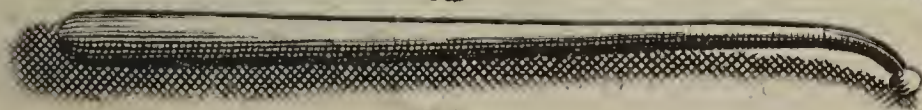
VIII



IX



X



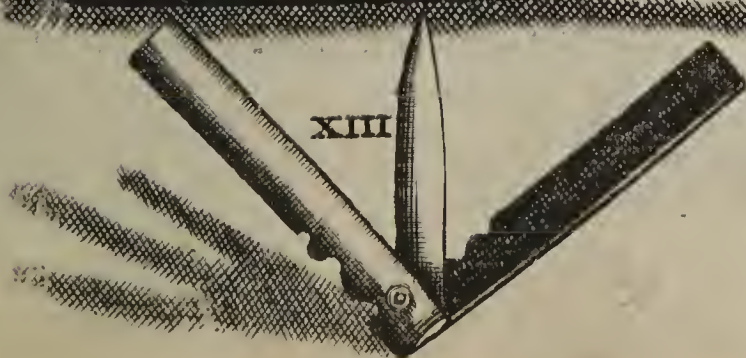
XI



XII



XIII



Take common salt half a dram.

Pepper 1 dram.

Fat Figs 3 in number.

Green Rue leaves a handfull.

Leven old and four 1 ounce.

Mingle all these in a mortar most diligently, to the form of a Pultis, which must be renewed twice a day.

Sennertus described this cataplasim; and the Ancestours of Spigelius, in the low Countries, held it for a secret, because it excellently well takes away all Escars. When the Escar was gone, I laid upon the ulcer the *unguent citrinum*, which hath a force to digest, attract, to ingender flesh, and to resist poison; about the ulcer I applied the plaister called *album coctum*; at last I cicatrised it with the plaister *Diapalma*.

Fig. III and IV. are round actual cauteries, wherewith the corrupted bone is touched, that it may separate from the sound bone.

Fig. VI and VII. are oval like at the end; wherewith the Hemorrhoids that run too much, are touched severally.

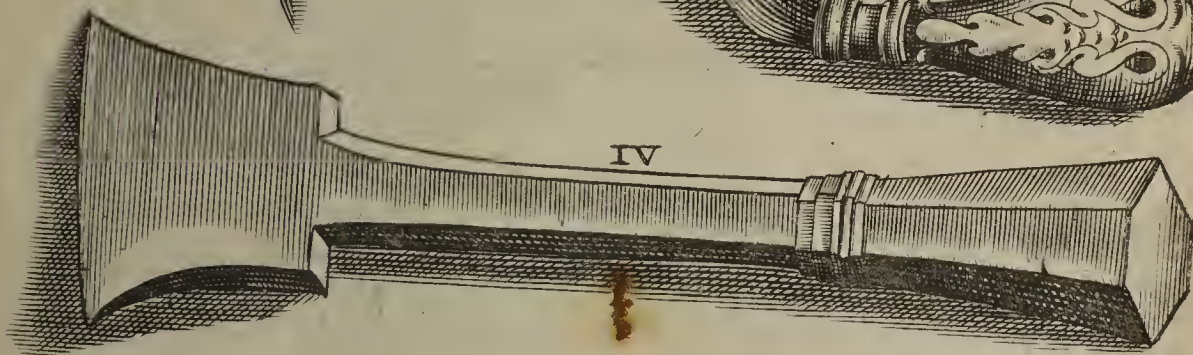
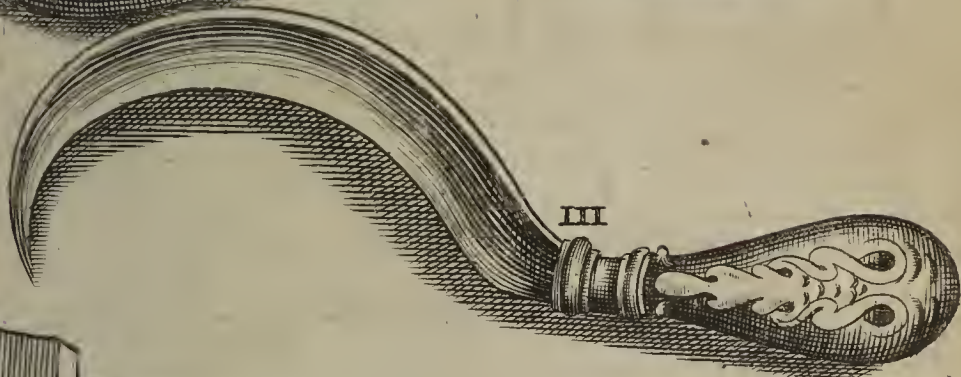
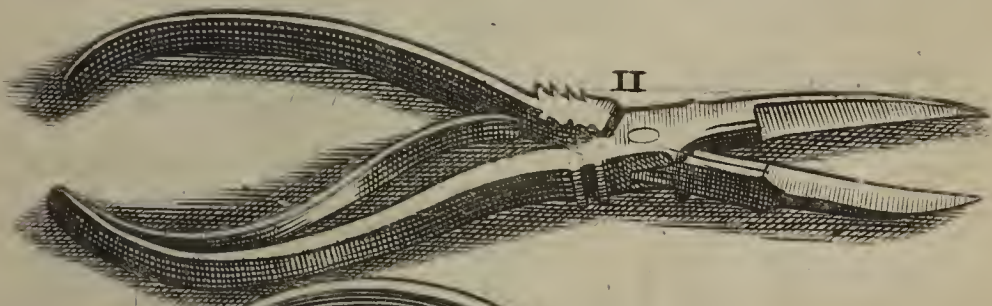
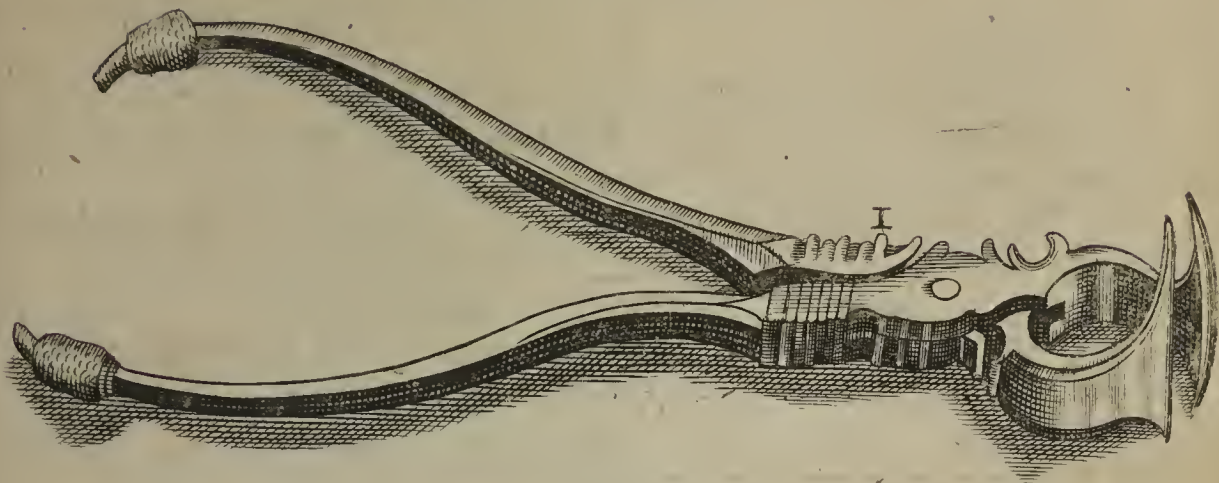
Fig. VIII, IX, X and XI. are actual cauteries round at the end, which are thrust into hollow teeth to hinder the rottenness of them. The figure marked with a star is a straight Lancet, cutting with both edges. With this the French and Italians very happily open veins to let blood: With this the fundament of children new born, and the yard not perforated is opened: With this, in Germany, fontanels of the limbs are made.

The XX. Table.

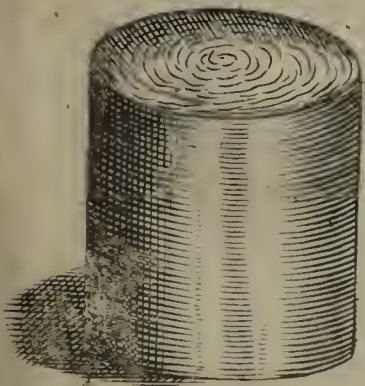
Of the greatest sort of pincers; the cizers that cut Cartilages; the crooked knife; and the wooden mallet which we stand in need of besides the pincers, to cut off a part that is sphacelated.

FIG. I. is a pair of pincers, wherewith not only bones are cut off that rise up in fractures with wounds, and cannot be set together again; but also those which by their sharpness prick the brain; with this pair of pincers also, the fingers of the hand are cut off, and toes of the feet that are superfluous, and cancerated
or

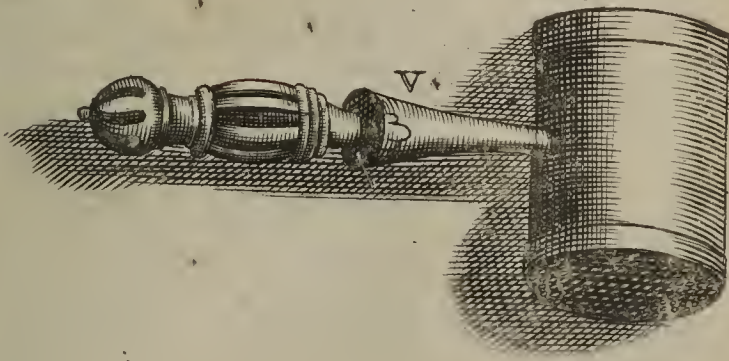
TABVLA XX



VI



V



Or sphacelated; which must be made as big again as you see it here printed. See underneath Table XXVI. Fig. I and VI.

Fig. II. is a pair of cizers to cut, made for grisly and brawny parts.

Fig. III. is a crooked knife wherewith the flesh is cut in so far as the bone which must be saw'd off, and is necessary before the amputation of the Leg or Arm.

Fig. IV. is a chizel wherewith not only the tops of the fingers are cut off; but also of the arm and of the radius.

Fig. V. is a hammer made of the hardest wood.

Fig. VI. is a block of wood, which is round and high; upon which the parts to be broken off must be placed.

The XXI Table.

Of the instrument which is called by Hippocrates ἀμῆλω; of the ladder; of that which Nileus calls Plintheum; and of the pipe, and Galen's Glossocomum.

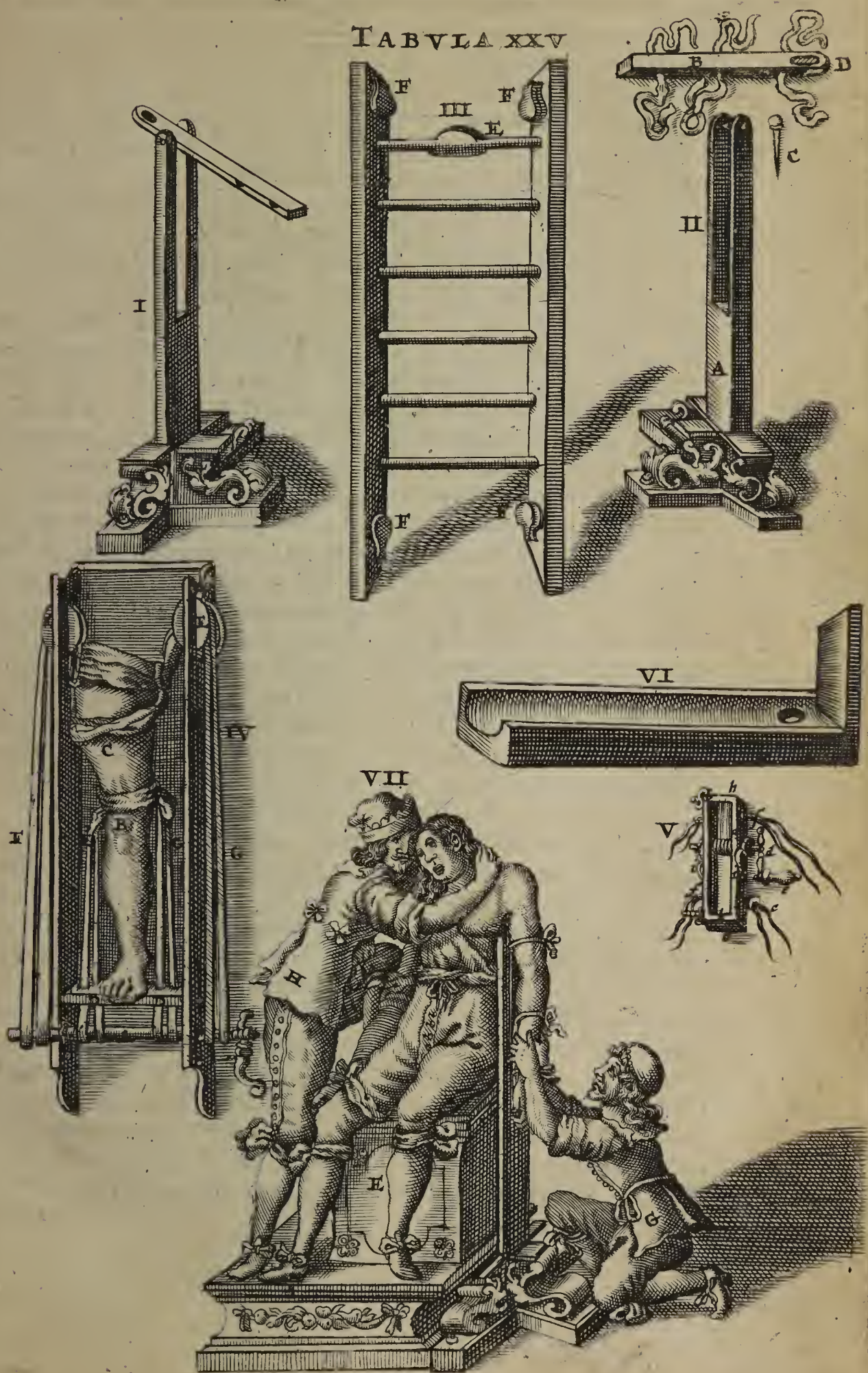
FIG. I. shews the fashion of that instrument which Hippocrates calls ἀμῆλω, with those things that are added to it.

Fig. II. is the instrument called *Ambi*, divided into its parts, (namely the pillar A; the wooden spatha or *Ambi*, properly so called, B; and the pin C; which holds the turning *Ambi* B. in its pillar A) *Ambi* is thus described by Hippocrates, *Sectione 6 De Articulis*.

Let the peece of wood B be almost five or four fingers broad, and two fingers thick, or else not so thick; but in length two cubits, or somewhat less; whose one end D must be round and very narrow in that part, and exceeding thin; but it must be very high, and in the uppermost part of the roundness it must a little stick out, wherewith it reaches not the ~~side~~ but the top of the arm, that the arm-pit set under it, it may be fitted to the side: I add that this piece of wood must have three holes, through which thongs of leather may be put, wherewith the arm must be fast bound to the wood.

Fig. III. is a ladder, whose uppermost round hath a round body upon it E, which is put under the arm-pit, between the side and top of the shoulder; after this the Chyrurgian draws downward the

TABVLA XXV



the arm out of joint, but not bound to the *spatha*; another of the servants laying hold of his neck and top of his shoulder, shall draw likewise on the other side; a third shall lay hold of his whole body and draw downwards also, on the other side of the ladder. See the fashion of this operation in *Galen. comm. in Lib. Hippoc. de Articulis*. Also this Ladder hath four pullies, for the use of *Nileus* his *Plintheum*, which shall be explained underneath Fig. V.

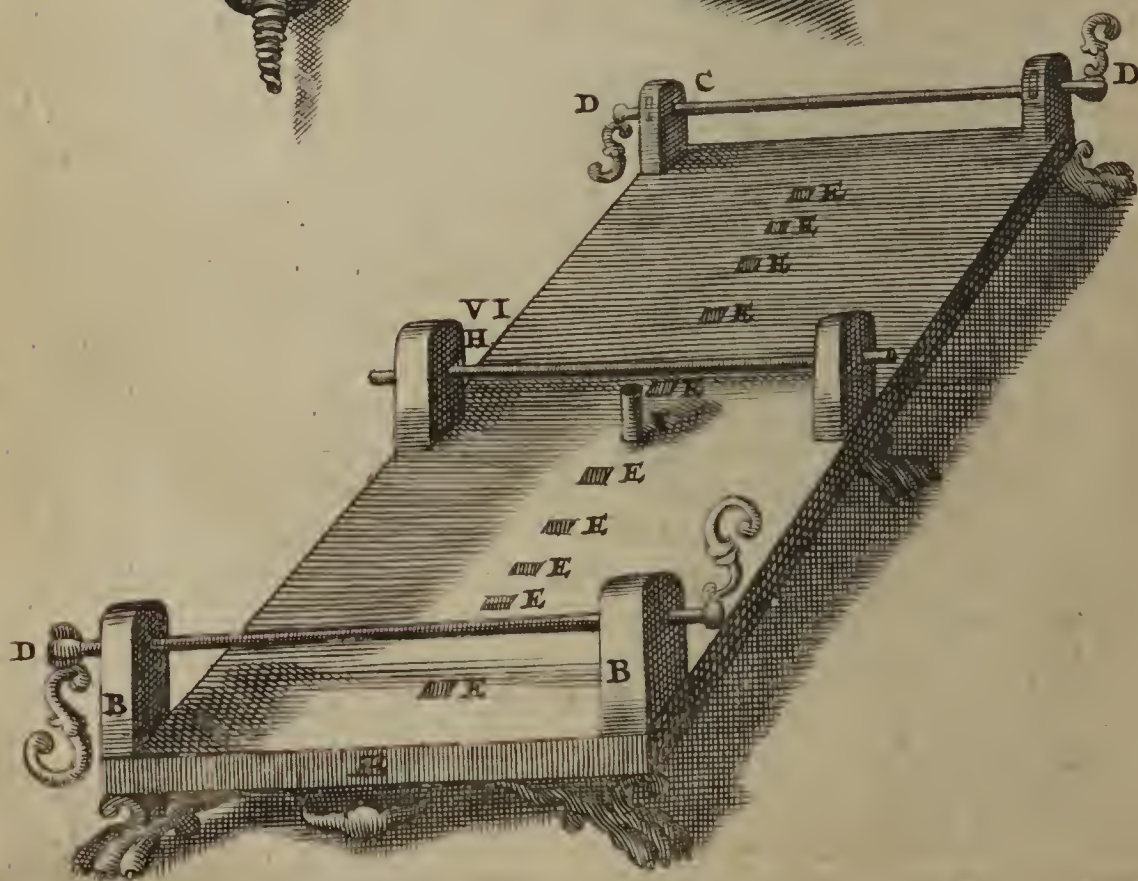
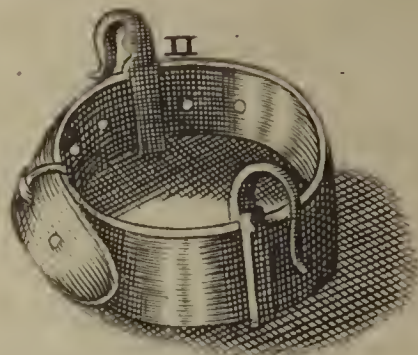
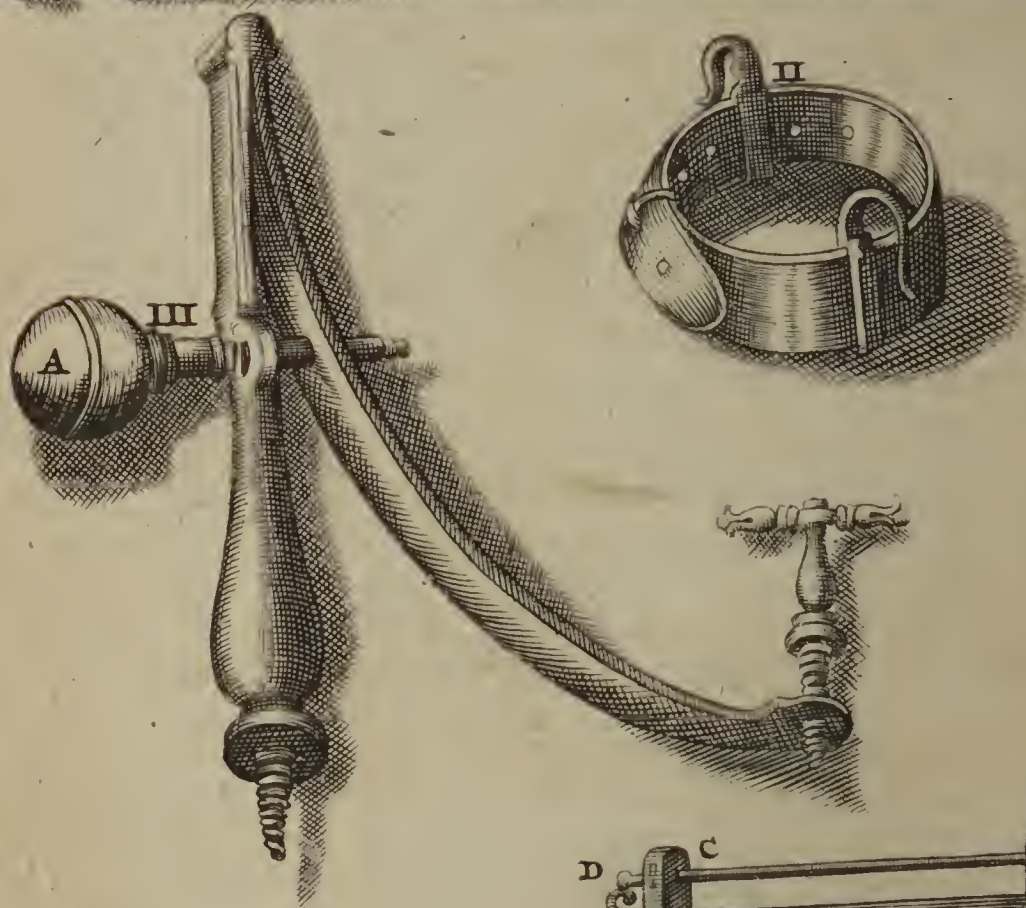
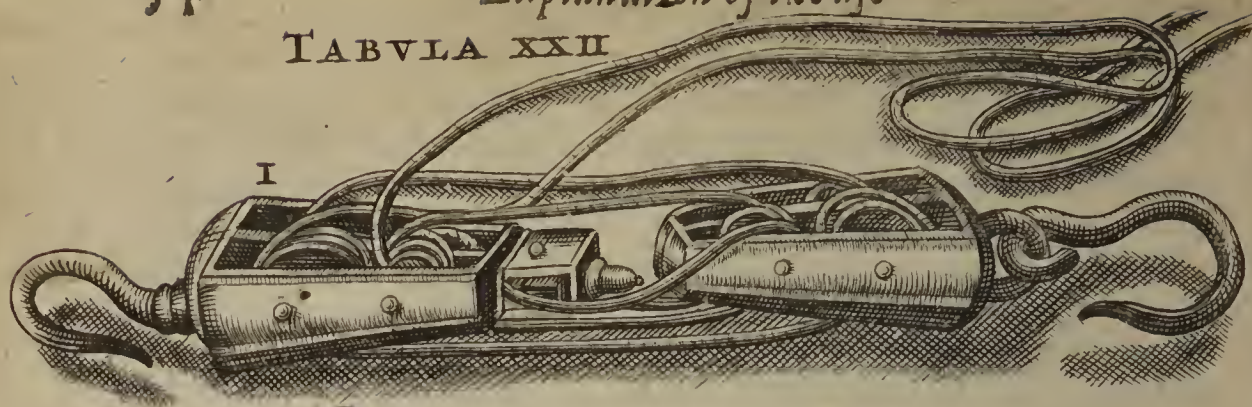
Fig. IV. is the form of an instrument called *Glossocomon*, for the fractures of the thigh and the leg, to hold them fast together when the Patient is removed from his bed, whereon he lieth, into another bed till that be made; and it is exceeding fit for it. The description of this *Glossocomon* found in *Galen, comm. lib. Hippocr. de Fracturis*, is thus: This instrument called *Glossocomon* was invented by the latter Physicians to hold fast, when the thigh or leg is broken; the making of which, and the use of it, I shall annex hereunto. And indeed this seems not to me to be invented to no purpose; and if either thigh or leg be broken, it is most conveniently applied, where the callous may compass it about. It hath at the lower part the Axis A, to which must be tied the ends of the strings that extend divers waies; let the strings be fastned upon the utmost parts of the bone that is cured; and make them so of two bands B and C, that both of them may have four ends, two on the right side F, and as many on the left side G. From those ends, those things which are belonging to the lower string B, must be drawn to the axletree, by the holes made in the lower part of the *Glossocomon* D; and those things that belong to the uppermost string, must first proceed to the upper parts; then they also must be put through the perforated sides of the *Glossocomon*, whereby they are fastned in the holes of the screw F; but on both sides, on the outside of the *Glossocomon* F and G, the ends of the upper string C must be carried to the axis. For these things being so ordered, one turning about of the axis, will equally extend both strings, that downward which is bound to the lower part of the broken bone; but the other upward so, that where the leg lieth you may afterwards daily correct this stretching of the strings divers waies, by extending more or less forcibly. Therefore the axis extends the string B, which is in the lower part, drawing directly; but that in C, which is in the upper part, it extends by the interceding of another motion; the Greeks say it is done *αὐτῆς μεταδιπλῆκῃς τῆς πύρας*. The Figure shews the extension of the thigh that is diminished; but if the leg be diminished, the upper string C must be fastned below the knee, and the lower above the ankle;

ankles; and so the leg is to be kept extended divers waies.

Fig. V. is a drawing instrument called *Plintheum Nilei*; and it is made after the pattern of those which are called long and square wind-lasts. This instrument hath two sides (*a*) four hands breadth long, and a finger thick overthwart, which at both ends are compacted together with two cross boards (*b*) which have in the middle the hole (*c*) through which the cords (*b*) are put. The thickness and breadth of the Transorus, is equal to the sides; but the length of them is a full hand breadth: wherefore rightly is such a joining together made, that the sides (*a*) may be four hands breadth long; and the Transorus (*b*) but one. The whole instrument is made long waies; yet if a man will, he may make the sides shorter then I have said, since the instrument performs its operation by one axletree: Therefore the sides, in the middle, are perforated with round holes, through which the axletree (*d*) passes, whose left end, where it passes without the side, hath a wooden handle (*e*). Also in this instrument there are four iron rings (*f*) fastned to the sides, with as many leather strings hanging down, two at the lower part, and two at the upper part, that it may be fastned to the ladder Fig. III. To both ends of the axletree there are wheels added (*g*) and to their stops (*i*) that they may hold firm the axletree turned about by the handle. So that if the arm, out of joint, cannot be reduced either by a band put under the arm-pit, (Tab. XXIII Fig. II.) nor yet by a linnen cloath wrapt on a heap (Table XXIV. Fig. I.) this instrument must be tied to the ladder; and the arm must be extended after the same fashion and manner, as it is found to be done in *Oribasius lib. de Machinament. cap. 14.*

Fig. VI. is a long, hollow trunk, wherein the leg or thigh, being broken or out of joint is laid; it must be filled with Towhards, for the whole part must be laid in the hollow trunk, rather than half, *Hippoc. de offic. medic.* This Capsula hath the hole G at the bottom to receive the heel, and at the end a long board for the sole of the foot to rest against.

Fig. VII. represents the best reducing of the shoulder fallen beneath the arm pit; that is, which *Fabritius ab Aquapend.* describes thus. The end of the *spatha* must be set under the arm-pit of the shoulder out of joint, between the side and the top of the shoulder; the rest of the plank must be bound placed all at length, with the arm on the inside; first, immediately under the top of the shoulder disjointed; next above the elbow, and last upon the wrist. This being done the Patient must be set upon a seat E, and his arm bound to the plank must be fitted to the beam or pillar (Fig. II. A) by means



of a pin (Fig. II. C) so that the pillar be between the ribs, and the plank bound to the arm (Fig. VII. F.) The Patient and pillar being thus situated, the Chyrurgian G, on the one side, shall pull the arm downward; and on the other side his servant H, taking hold of the neck and shoulder of the Patient, shall likewise pull him downward. For whilest the Chyrurgian pulls the arm downward, the plank, together with the arm, is drawn to the sides; but when the lower end of the plank is brought to the sides, the upper part which is round makes a contrary motion, and so moves the head disjoined to the fore part; which motion being made, the muscles after that draw easily; or else the Chyrurgian, by force, doth thus reduce the head of the shoulder bone. This manner of using the plank, differs from that which *Paræus* describes, *lib. 11. cap. 27.* How the shoulder may be reduced by the ladder and the *spatha* together, *Paræus* shews the figure *lib. cit. cap. 26.* The other waies of reducing the shoulder out of joint; namely, by the Thessalian seat; the double door; the cross beam, and the Pestle, are found described in *Galen*; in *comm. Hippoc. de articulis.*

The XXII. Table.

Of *Vitruvius his drawing Engine*; the *small girdle* and *Remora* of *Hildanus* and *Hippocrates his form.*

FIG. I. is a drawing Engine with a small cord; by which we use to extend joints dislocated, and fractures; it is taken out of *Vitruvius lib. 10. cap. 4.*

Fig. II. is a little girdle (wherewith the arm is compassed in above the wrist; the thigh above the knee; and the leg above the ankles) with two small hooks.

Fig. III. is an instrument called a Remora, which in dislocations of the shoulder toward the lower parts, is put under the armpit, that the knot of the shoulder may be answerable to the head, and the pin B may fasten the Remora; although this instrument which *Guill. Fabritius Hildanus* sets forth and describes *Cent. 5. Obs. 86.* with the way to use it, be highly commended by the latter Chyrurgians; yet the laxations of the shoulder are far more happily reduced by *Hippocrates his spatha*, if they cannot be set with the hand, than by the Remora or any other instrument.

TABVLA. XXIII.



Fig. IV. is *Hippocrates Form*, which is most convenient to restore and set again limbs broken or out of joint. The Board A is prepared six cubits long, and two in breadth; it hath nine fingers overthwart in the thickness *Æ*, where it is to be turned upward. This board hath four other boards, which are round in the upper parts; namely two, and again two at both ends B: *Hippocrates* calls such timber boards *φλίας*; in the breadth they are perforated, and in the holes the axle-trees C pass through, which at the ends have handles D to turn them about; the whole plank, from the middle to the end, hath hollow places E, that are 4. fingers in breadth distance one from the other; whose breadth and depth is equally three fingers broad overthwart, in which a round piece of wood is set F. *Hippocrates* calls these holes that go not quite through *καπίττες*. This Form, besides the four *φλίας* G. at the end hath two other Posts in the middle, which contain the cross piece of timber H, in the upper hole to reduce the thigh slip forward in the hinder and external part; whereof see *Oribasius lib. de Machin. cap. 37 & 38*. The Form stands on six feet, that it may be lifted up with mens hands, and removed from place to place. To the little wheels of the Form, Remoras may be fitted which may keep the axle-trees ends unmoveable. I shal declare the use of this Form of *Hippocrates*, underneath Tab. XXV. lest young Practitioners may have the same mischance that I knew, in my time, at *Padua* befel a Chyrurgian and a Physitian, who was otherwise most famous for his skill. This man when he had need of this Form to extend a fracture of the leg; but having borrowed it knew not how to use it, to his great disgrace, was with shame constrain'd to learn the use of the Form, from one of whom he had borrowed it, almost against his wil.

The XXIII Table.

Of the setting of a shoulder broken; and the reducing of the shoulder, arm and thigh bones, put out of joint.

FIG. I. teaches how to extend and to set the shoulder bone that is broken; which *Hippocrates Sect. 6. de fractur. text. 9.* describes excellently. Wherefore the most exact distance of the arm is this. A piece of Timber of a cubit long A, or somewhat shorter, as are the handles of spades, must be bound on both sides with the cord B, and hanged up; but the man placed upon some high stool, must so lean upon it with his hand. that the handle may be so placed under

under his arm-pit, that he can hardly sit down, but may remain almost hanged up. Then some one firm bolster or many C, being laid under and above it, at that height which may answer to the arm placed at a right angle; it were better to hang by a broad and soft thong of leather, or a broad band tied about it D, some heavy weight E that may gently stretch it, or else some other strong man may forcibly draw the arm downwards at the bending of the arm Fig. II. but the Physitian standing and placing one foot on a higher place, must attempt the cure, and with the palms of his hands set the bone; which truly will be easily done, for this way of extending is commendable if a man use it rightly. Others commend the way that *Celsus* used to extend the shoulders, which he describes very darkly, *Lih. 8. cap. 10.* but *Fosius* hath clearly opened the meaning of his words intirely, in his *comm.* upon the former words of *Hippocrates*; to which I think fit also to subscribe.

Fig. II. is the reducing of the arm out of joint, according to *Hippocrates* his mind, where the elbow is slipt forth to the inward or outward part; the distention must be so ordered that the arm may be placed at a right angle with the shoulder. But it behooves us to lift up the arm-pit with the band F put under it; and to lay the arm upon something, and about the joint to hang some weighty matter Fig. I. or else to press it downwards with the assistants hands, as in this Figure. *But whilst the joint is hanged up, it is necessary to thrust hard with the fore part of the palms of the hands. This Figure is convenient, whilst the arm is bound, hanged up and placed.* When it slips forth on the hinder side, it must be suddenly extended, and with the fore-part of the palms of the hands forced into its place again, which also must be observed in reducing other bones. When it slips forth into the fore part, laying a linnen cloath upon it, wrapt up in form of a ball, it is necessary at once to bend and reduce it, Table XXIV. Fig. I. But if it slip into the other, or hinder part, when it is reduced, both of these also must be done: See Table XXIV. Fig. I.

Fig. III. shews *Hippocrates* his way of reducing the shoulder slipt under the arm-pit. For though that be the most excellent way of reducing, which was commended a little before, Table XXI. Fig. VI. yet this which follows comes next to it, which our old man seems to commend in these words. Wherefore they whose shoulders slips often forth, may for the most part reduce it themselves. For thrusting under the arm-pits the knuckles of the fingers of the other hand, they thrust the joint upward, and they draw the bunched part of the arm to their breast. Also after this manner the
Physitian

Physitian shall force it into its place; if the inward part of the joint be slipt forth, putting his finger under the arm-pit, he shall set his head to the top of the shoulder and bring it back from the sides; but setting his knees to the binding of the elbow with his arm, he shall thrust it to the sides. But it is necessary that he who reduces it should have strong hands, or else he must do it with his hands and his head; and some other that assists him, must bring the bunched part that sticks forth unto his breast.

Fig. IV. is the reducing of the thigh out of joint, which *Hippocrates* describes as it here follows. But the hip is thus reduced, whether it slip forward or inward. A ladder is set in the ground, whereupon the man sits with his sound leg lightly extended, and bound about it with the best convenience; but to his leg out of joint G, there is hanged a basket H full of stones, or some earthen vessel full of water: See the Figure of it in *Galen, comm. 4. in Hippocr. de artic. text. lib. 4.*

The XXIV Table.

Of the cure of the dislocation of the elbow, of the hand, and of the neck bone.

FIG. I. represents another way of reducing the elbow out of joint, according to *Hippocrates* his opinion. But it is expedient to put a swathe band wound up together, or a linnen cloath folded hard, yet not very great, laid athwart on that part where the bending of the arm is, then to bend the arm suddenly, and as much as possibly you can, to bring the hand to the head of the shoulder; for this way is very sufficient for those who have it slipt forth forwards or backwards.

Fig. II. the hand out of joint is reduced. Now the hand slipt forth, either to the inside or outside, but most commonly to the inside. It is a certain sign when it is slipt into the inside, for it cannot be bended; and when to the outside the fingers cannot be extended. In reducing of it place the fingers upon a Form, or upon a Table. and let them be stretched divers waies by two persons that are assistants. That part of the bone which sticks out, must be repulsed either by the upper part of the Chyrurgians palm of his hand, or with his heel also, and be forced into the former and lower

lower part ; but from underneath near the other bone, some soft ball must be put, with the hand downward, where the laxation is on the upper part ; but the hand upward, where it is on the lower part.

Fig. III. shews the reduction of the neck bone, which *Galen* describes, *comm. 2. in Lib. Hippocr. de artic. text. 73.* If that part of the cavel bone, which is joined with the breast bone, break forth side waies, or toward the lower part, then *Hippocrates* saith it will be conveniently reduced, if a man be laid on his back, laying a pillow between his shoulders near the back bone, or else a boulder or some such thing, that by this means the whole breast may bend; this he expressed by the word *ἀεγγυδὲς*; which the Poet used also, *ἀεγγυδὲν δὲ τετραπύζην ὑπὲρ πλάτων.*

Wherefore a man lying in that posture, he commands that the Chyrurgian, with one hand, shall thrust back the top of the shoulder which is removed to the side, toward the outward part; for so the parts of the neck bone drawn away, will much retire amongst themselves, the bended posture of the breast conducing very much thereunto; and with the other hand he shall set and bring together, the parts of the neck bone that were dislocated: But the shoulder to be thrust up near the side, sometimes it sufficeth to be joined afterwards.

The XXV Table.

Of the reduction of the ankle bone dislocated; of the extension of the leg broken; and directing of the back bone split outward.

FIG. I. shews the reduction of the ankle bone, which *Oribasius Lib. de Machinamentis cap. 40.* describes. The ankle bone sometimes slips forth inwardly; sometimes also it is turned toward the hinder part. When it slips into those parts it is convenient to lay a man upon his back (upon *Hippocrates* his Form) the leg of-fended being stretched forth; and upon the leg (presently under the knee) one must bind about a cord, after the fashion as it is bound on the top Mast of a Ship A, and extend equally, and bring the ends of it on the hinder part to the axle-tree which is above the head; but on the ankle he must tie the knot or sandal B, and bind the

TABVLA. XXIV.

Fig. I.

II



III



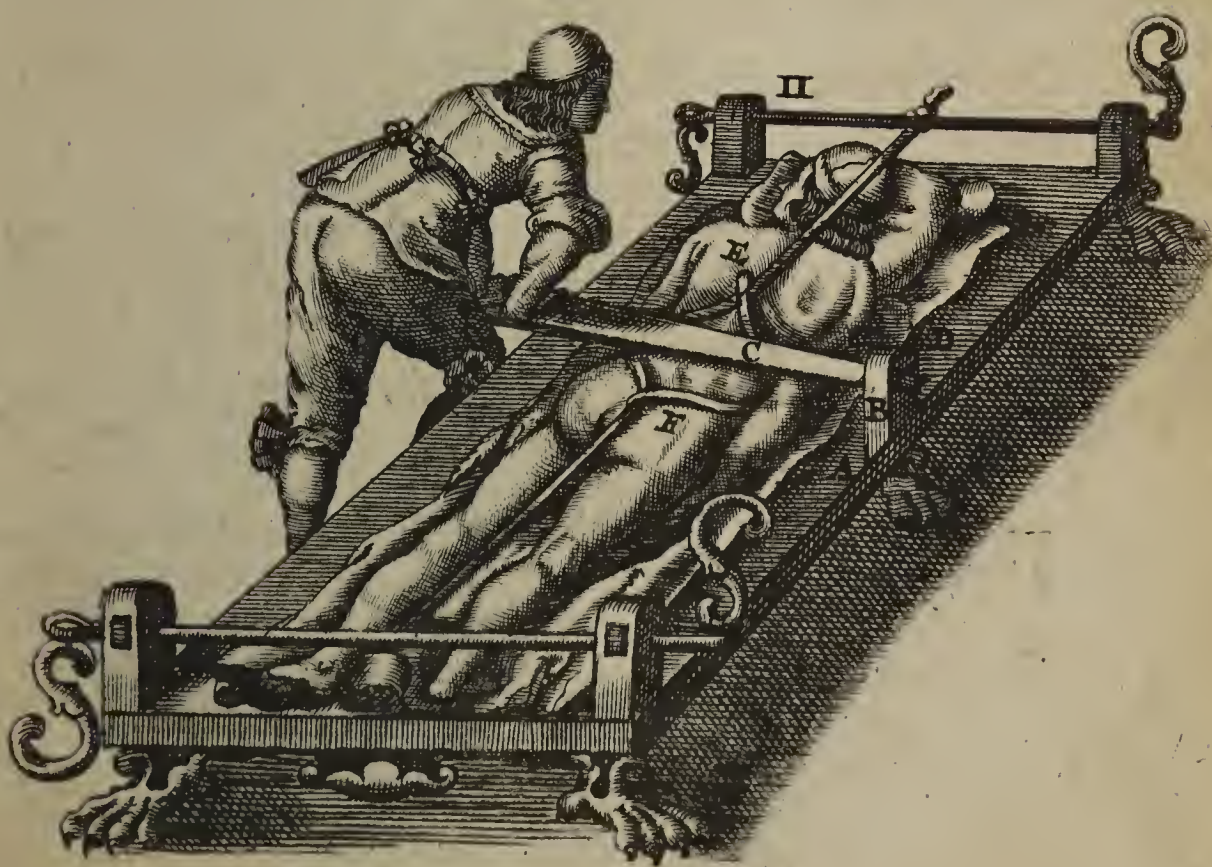
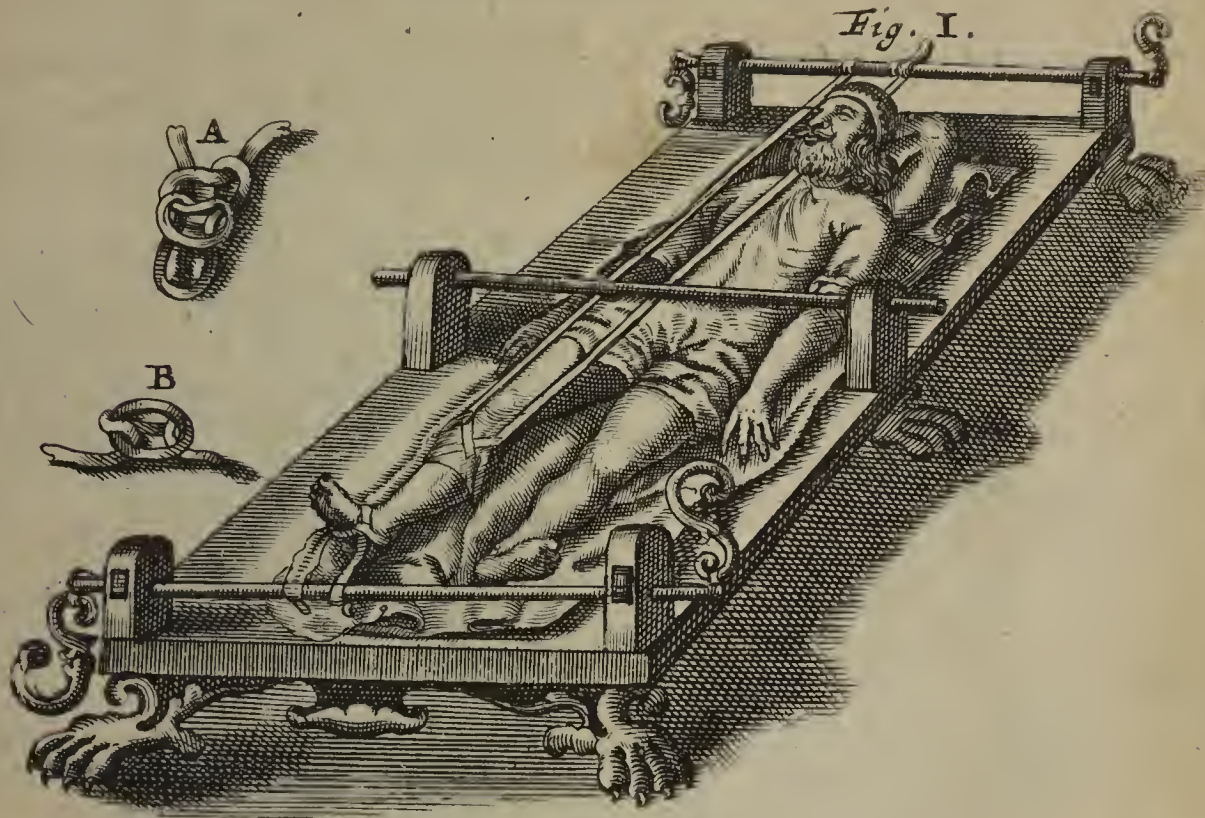
the ends of it to the nether axletree; and then either draw the part divers waies, or hold it so, and extend from the lower part; and the strings being drawn as much as need is, he must force it back again conveniently, when it is started forth to the inward or outward part; but when it is gone to the hinder part, he must draw it out; for now force to draw it forth is very convenient for that posture.

But if in a fracture of the shin bone, or the minor forrile, or of both bones at once, the leg cannot be extended with the hands; let the Patient be placed upon *Hippocrates* his Form, and let the carthesian ligature A be put about the leg below the knee; but let the sandalian B be bound above the ankles; afterwards let the leg be extended by the bands drawn divers waies, and let the fracture be set together.

Fig. II. shews the extension and impulsion of the *spina dorsi*, dislocated toward the external parts. This is easily prepared, if the half Post G, in the Form of *Hippocrates*, set forth Table XXII. Fig. IV. be removed with the Priapiscus F, and into the hole of the right Post A, some hollow piece of wood B be let down, which may receive the Spatha C to be made fast with the pin D, that it fall not out. This being done let the Patient be laied with his face downwards upon the Form; then let two cords be put about his middle, one above E, and the other below F the bunch of the back, whose ends must be carried oppositely to the axletree, that being turned about they may equally extend the back bone. That piece of Timber which receives the Spatha or cross bar, must have at least three square holes, that the cross bar, for the greatness of the bunch on the back, may be fitted to it, on the upper middle or lowest part of it. Last of all the Spatha, being set upon the bunch of the back, and pressed down with the great violence of the Chyrurgian, the dislocation is forced in. This way of impulsion differs much from that which *Oribasius lib. de Machin. cap. 35.* describes, in words and manner, very obscurely.

TABVLA. XXV.

Fig. I.



The XXVI Table.

Of the extending of the Thigh broken into divers parts, and the setting of it; of the reducing of the knee that is dis-jointed; and of setting the whole foot in a mean posture.

FIG. I. represents the thigh broken extended by bands, when it cannot be extended with the hands, and Hippocrates his Form is not at hand: Let the Sick be laied on a common Form, with his face upwards; let the band be tied under his arm-pits, and put another band in the space that is between his privities and his fundament: Lastly, another band must be bound above his knee, and his ankle; these bands must be drawn by strong servants, the uppermost upward A, the undermost downward, till the Chyrurgian hath set the fracture. In the setting of the knee out of joint, when extension cannot be made with the hands, let the upper bands be bound alike, and the undermost above the ankles.

Fig. II and III. shews the mean figure of the members and muscles of the arm and the whole foot; which is necessary in the extension, setting, binding and placing of a part either broken or dislocated. But I therefore caused the figure of this configuration to be printed here, that young Chyrurgians, when it shall be often pointed at underneath, may at first sight learn it, and may imitate the same in their practice.

The XXVII Table.

Of the corruption of the bones, of the arm and shin, even as far as the marrow; of the shin bone broken with a wound, and the bones sticking out, and bound with swathe bands brought circularly about; and of the cutting off of the end of the hand or foot.

FIG. I. represents the corruption of the bone, and of the marrow of the shin bone, of Mr. *Augustine Meitzgen*, whom I cured by the following means. The first day, three fingers breadth beneath the Rotula, namely where the right muscle ends that extends the shin

TABVLA XXVI.

Fig. I.



II



shin bone, I cut the leg long waies, with a streight pen knife (described Table II. Fig. II.) as far as the lower end of the shin bone: I found the bone covered with a movable and brawny substance; and I bound the wound with medicaments which stench blood: Secondly, when the blood was stopt, I perforated in three places the callous or gristle, which grew upon the shin bone, with Trepanns, (represented Table III. Figure III, IV and V.) and presently I cut through the spaces between the three holes, by the Pincers (described Table XX. Figure II.) and I found the shin-bone all rotten and corrupt; which from the knee, as far as the end of it below, was parted from the sound bone, and I drew it forth with my Pullers; then binding the leg with thirteen bands cross wise, I laid it in a Capsula or case filled with hards, as Figure X. of this Table shews you. But I provided thirteen bands that were different in length (for the thinner and lower part of the leg needs shorter swathes, but the thicker part requires longer) but they were all three overthwart fingers breadth, which I so fitted for the Capsula, which was to be set under the leg, that part of every lower band, should cover about half the upper band. This being done, I laid the leg which was to be bound into the Capsula covered with bands; then I turned the ends of the lowermost band cross waies upwards; afterwards the ends of the band which was next to the lowermost, and so on till I came to the uppermost, whose ends I fastned with a double knot; see Table XXIX. Fig. 1. We have need of bands of this kind, when the part affected requires often looking into, and to be defended from a flux of humours running to it.

Fig. II. represents a shin bone wholly corrupted and rotten; as it was after the cutting off of the callous, it was covered withall.

Fig. III. represents the place where the corrupt bone was scituated, and was now pulled forth with the pincers. It shews also the hole wherein the head of the minor fossil, is seen more corrupt than the shin bone which I cut forth with Trepanns.

Fig. IV. is that shin bone corrupted, which the Patient laid up for a memorial.

Fig. V. shews another fracture in the leg now cured; whereof underneath I have observed a whole History.

Fig. VI. is the bone of the right arm corrupted, and (like the former leg) covered with a certain gristle: Whereupon I cut the skin, on the outside of the arm likewise with a pen-knife, from the wrist to the

the shoulder ; and I dilated the wound laying astringents to it. The next day I twice perforated the callous or gristle with *Aqua-pendent's* Trepan : I cut out the space between the holes with a pair of cizers, Table XX. Figure II. and I uncovered the band under it.

Fig. VII. represents the bone of the arm totally corrupted and sharp ; which I also pulled away with the pullers, but by pieces, without any noise or pain.

Fig. VIII. shews the place where the corrupt bone of the arm lay, which was now pulled forth, which Nature filled up with a callous ; so that the Patient could perform country business without any impediment. The Patient was a Country man of *Pappavia*, whose arm a Souldier broke in four places, without any wound, *Anno* 1636. This fracture of the arm was set by me and *Nicolas Reuten*, as well as it could be ; and in our judgement also it was well cured ; but we suspecting no harm, the arm began to swell again, and was in great torture ; at last it was a little ulcerated, with a consumption of the whole body, so that we began to think of the corruption of the bone that was so often broken, which we also afterwards found when we had cut the skin, and cut forth the callous with Trepan ; at length we bound the arm about with bands cross wise ; and we cured it by remedies which were applied to Mr. *Augustine Mertzzen*.

Fig. IX. is a fracture of the shin bone with a wound, and laying the bone naked, so that the ends of it break forth without the skin ; which if they belong, they neither can nor ought to be set by extending only, for fear of pain, convulsion and inflammation that are like to follow ; but either (if it can be) by putting an instrument between the ends of the bone, which is like to a cutting chisel, that they may be joined whilest the leg is extended without violence ; or if any of the ends so stick forth, that it cannot be set by the cutting chisel A ; but rather it tears the parts adjoining, and causes pain, according to *Hippocrates tertio de Fracturis* ; it must be cut off with the Pincers (Table XX Figure I.) and afterwards the broken bones must be set in their places, when the bone jetting out is cut off, that the bone is made shorter, they must tell the Patient before hand that the leg, or other parts, will be shorter : Which prediction out of *Galen* and *Hippocrates* is true, when the thigh or shoulder hath lost a piece of the bone ; but when a bone is cut away from the shin bone or arm broken, (the other bones adjoining not being hurt) the shortness of the limb is not alwaies to

be feared; for the bone keeps the sound member stretched out, until Nature recompenses the defect of the part lost with a certain callous. †

Fig. X. is the bone of the shin with a wound, broken, with bones sticking forth, and bound with bands not cross-waies, but circularly brought about, and laied within the Capsula as it ought to be; this hatching ligature which is ascribed to *Hippocrates*, shall be explained underneath in the cure of a fracture with a wound, in most plain words.

Fig. XI. is a hand affected with a secret Canker, which is cut off in the sound part; namely, at the ends of the *radius* and cubit bone: But the fleshy substance is cut off, with a crooked knife B, as far as the bones; which afterwards are cut off with one drawing of the most sharp saw C. Note that the arm is not tied with a band upon the place to be cut off, that the infected blood may run out of the vessels; lest, being restrained, it should extend the arm.

Fig. XII. is a hand that is sphacelated, which being laid upon the block D, is amputated in the sound ends of the *radius* and arm bone, with a chizel E, contrary to *Hildanus*, with good success. The arm is bound, above the wrist, with a band; not only that the feeling may be abated; but also that the arteries may be bound after the amputation of the mortified part, without any great effusion of blood.

Fig. XIII. is a basin filled with *oxycrat*, in which swims a bladder, which being wet must be applied to the mutilated part.

Fig. XIV. are two swathe bands wrapt together F and G; whereof each hath two ends, to bind the arm, whereof the hand at the end is cut off.

Fig. XV. represents a foot that is sphacelated, which is taken off in the mortified part (according to *Hierom Fabritius ab Aquapendente lib. 1. Pentateuch, cap. 19. and lib. oper. chyrurg: titul. de Sphaceli Chyrurgia*) near to the sound part, with a pair of pincers, Table XX. Fig. I. The mortified part being removed, the rest of the putrification is consumed with red hot irons (Table XXVIII. Fig. IV.) until the Patient feels the force of the fire. After this two Plagets are anointed with *Hildanus* his unguent *Egyptiac*, which are applied to the Escar; lastly, long plaisters I. being laid upon it, the foot mutilated is bound with a wet band K as far as the knee; as the hand is (Table XXVIII. Fig. II and III.) unto the middle of the arm.

Fig. XVI. are divers sorts of iron instruments (Table XIX.) and made red hot, both to consume the remainder of the putrified part, and are also fit to stop the flux of blood,

Fig.

TABVLA
XXVII

Fig. I



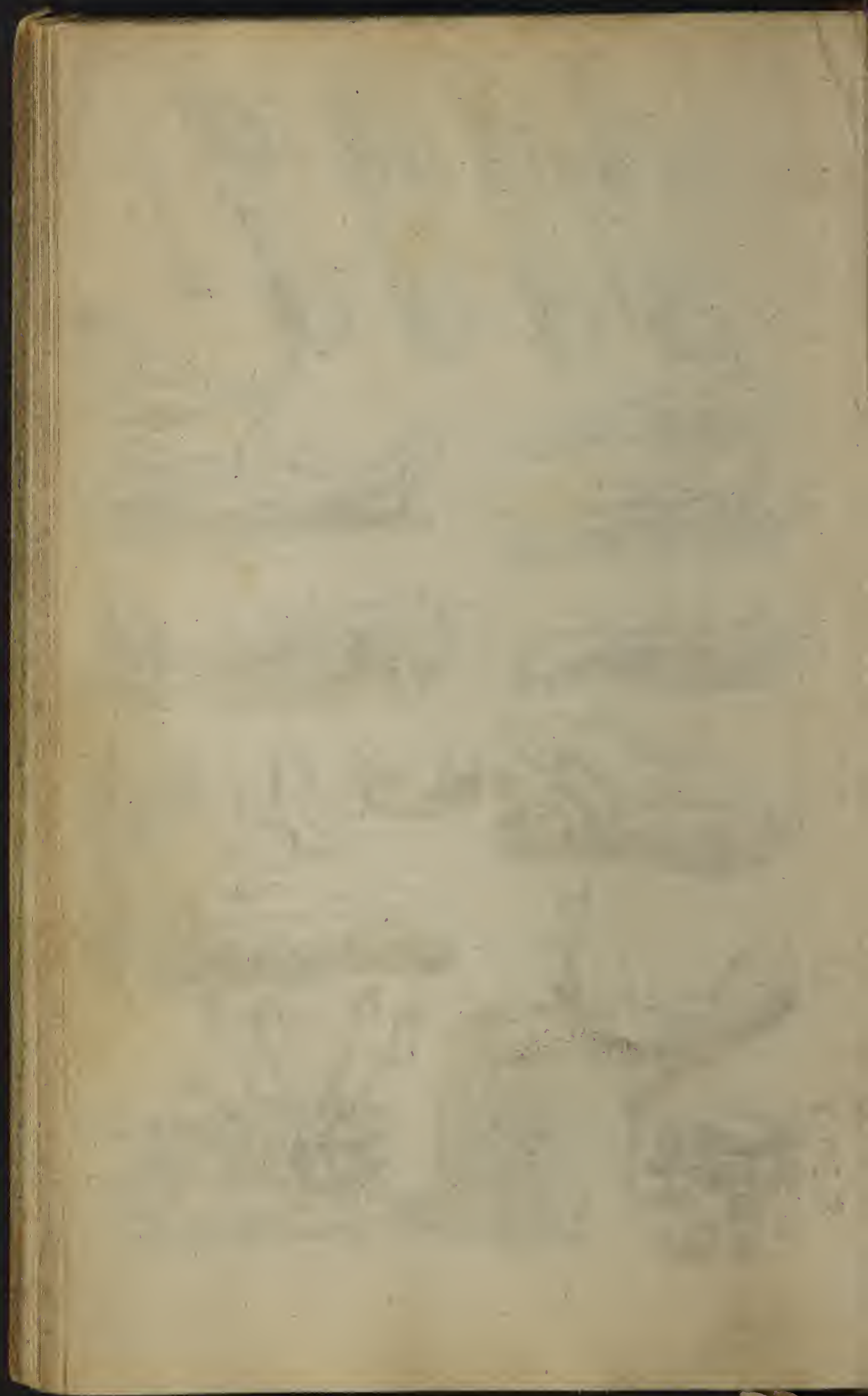


Fig. XVII. are two vessels with repelling medicaments; namely, filled with red wine, whites of eggs, and oil of roses, wherewith the ligatures are made wet; whether the part be cut off in a sound or a mortified place, to hinder inflammation.

The XXVIII Table.

Of the way of binding mutilated parts, and broken with a wound; of the Trunk for the foot; and of the general cure of dislocations and fractures.

FIG. I. shews how to bind the arm bands, after the hand is cut off; or how the band (F Table XXVII. Fig. XIV.) is applied to the bones of the arm (Table XXVII. Fig. XI and XII.) cut off in the quick. As that the arteries which bleed, are either drawn forth with a pair of pincers, and bound with a thread, or are touched with red hot irons; there must be an astringent medicament applied to the wound with Plagets; and upon these there must be laid plaisters wet with oxycrate, and pressed forth; then the arm must be rouled with a swathe band, the ends whereof must be brought cross wise twice or thrice, and one must ascend as far as the middle of the arm.

Fig. II. first shews a bladder wet with Oxycrate, and laid over the aforesaid band; secondly, another band (G Table XXVII. Fig. XIV.) which, as the former was often brought cross wise, shall ascend with one end to the bending of the arm, to hinder a flux of humours.

Fig. III. is an arm, whose hand was cut off at the end, and it was cured with astringent medicaments laid upon Plagets; plaisters being applied to it cross waies, bound with the first band was a bladder wet in Oxycrate, then it was bound with a second band. *This binding must be observed in every member that is mutilated, whether the operation be made near the quick, or in the quick it self.*

Fig. IV. is a foot, which by reason of a sphacelus, was amputated in the mortified part; in which the putrifaction remaining, is consumed by iron instruments made very red hot, untill such time as the Patient come to feel the heat.

Fig. VI. is a Bason filled with water and vinegar, wherein the plaisters are wet, as also the first band and a new sponge.

Fig. VII. wherewith almost all the arm is moistned, to hinder the flux of blood.

TABVLA XXVIII



Fig. VIII. is a fracture of the right thigh, with a wound on the outside. This befell *Katherine Bokin* of *Gien*, concerning whom underneath is found a singular observation. It shews moreover, how upon a leg that is broken with a wound, a hatching ligature (Table XXIV. Fig. X. brought round about; and whereof more shall be said in the cure of the fracture) must be laid under it.

Fig. IX. is a piece of the thigh taken forth of the wound, and printed both on the left and right side of it, that the rottenness of it may be better seen and considered.

Fig. X. is a broken thigh bound with a hatching ligature brought cross waies, and is to be laid in the long Trunk, Table XXI. Fig. VI. For if any man puts a hollow case under it, that goes not higher than the ham, he shall do more harm than good. For it will not hinder the moving of the body nor of the leg, without the thigh moving; but being applied to the ham it will bring trouble, and force one to that there is no need of. For there is no need for the knee to bend. For if any man when his thigh is bound or his leg shall bend his knee, he shall put all the ligature out of order; and then it is necessary that the muscles should change their postures, and the broken bones must be moved out of their places. Wherefore, first we must endeavour to extend the ham. Therefore a hollow Trunk will be usefull, which being put under from the hip to the foot, may hold it likewise; and principally, if a loose ligature be put about to the ham with the Trunk, as children use to be swathed in their Cradles. For when the thigh shall be wrinched either to the upper or the lower side, (*either whilest the Patient is a sleep, or when he goes to sit down, or staies whilest his bed is made*) in such cases it will be better contain'd in a hollow case. Wherefore a hollow case must be made for him from the top to the bottom, or else none at all. Moreover great care must be had for the bottom of his heel, that it may be fitly situated both in fractures of the leg and thigh. For if the foot hang, when the rest of the leg is fast bound, of necessity the bones must appear in the fore-part of the shin, in the part where it bunches forth; and that the more, the greater a man's heel naturally is. *Hippocrates de fracturis femoris*, see Table XXVI. Fig. II.

Fig. XI. is an Arm mutilated, in which the artery is drawn forth with an instrument that it may not bleed.

Fig. XII. is the Thumb of the right hand, which, the wrist being first bound with a swathe, is cut off in the quick, by reason of a *Sphacelus*: See Table XX. Fig. I.

Guilielmus Fabricius Hildanus hath written a most learned work, concerning the cure of a Gangrene and a Sphacelus, which young Chyrurgians must read carefully over and over again very often, (besides the way of ligature by swathe bands about mutilated parts, which I have here set down for their sakes) they shall find there all things necessary for the cutting off of a Limb. He, indeed, labours to prove, by many reasons, that a mortified part cannot be taken off quickly, safely, and without pain, if any corruption be left behind, to be consumed by red hot burning irons: Yet in my judgment all those reasons do not prove that the amputation of the part affected, that is taught by *Hieron. Fabricius ab Aquapendente*, doth never succeed well: And far less do they demonstrate, that this amputation should be of less value, than that which is perforated in the quick part; considering, that amputation made in the sound part, cannot be perforated without pain; whether the fleshy parts be cut with a rasour, or with a cautery with a sharp knife: Nor yet safely, because the quick part, bound with a band, easily mortifies; also amputation upon a sound part, cannot always be accurately performed; but that sometimes the parts that lie deeper, shall be left more corrupted than the outward parts; which if it happen, than we must either attempt to cut again, which were horrible; or else the remaining corruption, must be continued with red hot irons, according to the latter Practitioners. Not quickly, because a longer time is required to draw forth the Arteries with an instrument, and to bind them with a thread (and if the Ligature be removed, sometimes such a flux of blood follows, that unless the vessels be touched with actual Cauteries, it becomes the cause of the Patient's death) than to cauterize the wound presently with red hot irons: That I may not say the operation is the more prolong'd, if after the amputation taught by *Hildanus* and the Ancients, any corruption remains. Wherefore, relying upon reasons and happy experience, I determine that the way of *Hieron. Fabricius ab Aquapendente*; to cut off any, is to be preferred before the operation of other Ancients.

But if the strength of the Patient, by reason of putrid vapours, and a precedent flux of blood, is so weak that we are sure he will faint in the operation; for that time we must abstain from amputation, because it is more excusable to leave the Patient so, than to kill him knowingly. But when there is no hopes left, unless the part be cut off, what must the Chyrurgian do? Let him touch the mortified part, morning and evening daily, with very red hot irons,

irons, to drink up the putrid humours, that the sphacelus may not creep up higher; also let him give to the Patient, to take down Medicaments against poison, which may drive the corrupt vapours from his heart, and restore his strength by refreshing his spirits; and also let him apply such things to the external Region of his heart. When his forces are something refreshed (for his former forces are looked for with certain danger of his life) foretelling the danger, let him proceed to his operation desired. For it is better, the forces thus remaining, to try this doubtfull and most miserable way of cure, rather than none at all. While I studied Physick at Padua, a certain Lord of *Vincentium*, broke both the bones of his right leg in the middle, with a flux of blood till he fainted, and a sphacelus was coming upon it. The sphacelated foot, the most skilfull *Petrus de Marchettis* refused to cut off, because of his want of forces, by reason of his great loss of blood; but with red hot irons often applied, he hindred the corruption from spreading, and with Medicaments outward and inward he did corroborate him, and refreshed his spirits as much as possibly he could: At last, the Patient being ignorant of it, he cut the mortified part round about with a knife. When that fell down, he consumed the rest of the corruption with actual cauteries; and to remove the Eschar he applied *Unguentum Egyptiacum simplex*. The third day after the amputation of the lower part of the foot, as far as the fracture, the Patient complained of an extream pain of his great toe of his right foot; the Chyrurgian smiling, said that he wondred that he should complain of the pain of that toe which was buried above three daies before; with these words the Patient was so frightened, that he fell into a grievous swoond. When the Eschar was taken away, and the muscles, as they use to do, were drawn upwards, the bones stuck out four fingers breadth; which being daily covered with dry thin rags, and drying powders, in two moneths time they were separated from the sound bones. That the precedent Tables, and that which follows next, which treats of the cure of fractures and dislocations, may be better understood, I shall briefly set down the general cure of them out of *Hieron. Fabritius*, and his Master *Fallopius*; for he that hath those two hath all.

The cure of a simple dislocation.

IT is done by five Intentions, 1. Extension. 2. Reposition.
3. Deligation. 4. Deposition of the part dislocated. 5. Reli-
gation

gation of the part. Now Extension will be easily made if four things be observed : First, Time : Secondly, fit Instruments : Thirdly, Manner : And fourthly, the quantity of the extension. The time is propounded by *Hippocrates, de Artic. 64.* namely, that it should be done presently after it is put out of joint, whilst the part is yet hot. But if extension cannot be made presently, for want of a Chyrurgian or Physitian, we must do it the second or third day ; unless we be forced to delist, by reason of the inflammation that comes first upon it. But on the fourth day, by reason of great pains, nothing must be attempted ; for it is observed, that if we attempt then to reduce it, it will not succeed well, but many inconveniences will follow it. Whence *Fallopins de Luxationibus, Cap. 3.* saith, I admonish you that you alwaies have a care to the time ; which, at most, must not exceed three daies ; and if the third day be past, the term of inflammation must be expected ; and the time when there is no danger of inflammation, and that is the seventh day, as *Hippocrates* warns us *4. de Artic. 65.* untill which time the sick man is to be kept very low, with fasting, or rather with a very thin diet. Wherefore if extension cannot be made the first three daies, we must wait till the seventh day. The time when you may reduce, is the first, second, or third day, or else the seventh, eighth, or ninth day ; but on the tenth, eleventh, twelfth and the rest it is not safe ; because then the callous is bred. But before we come to extension, the joint must be prepared to prevent pain, and to make the reduction easie, by heating, fastning and loosening the parts of the joint ; namely, the Muscles, Tendons and Ligaments ; for if they be fastned, they will be drawn the more easily and without pain. But heating and softning of the joint, is made either by rubbing, or by pouring on much hot water, or water and oil ; or the decoction of Mallows, Marish-Mallows, &c. We use chafing conveniently, upon those places where water cannot be poured easily ; but it must be done with the hand, smeared with some oils or fat matter, as with common oil, or Hogs-grease that is not salted at all. *Spigelius* in his publick Lectures saith, that for to cure a dislocation, a Bath of sweet water can do so much, that there is nothing better than it.

The Instruments for Extension, are Hands, Bands and Engines ; Hands are used, if the dislocation be small ; Bands, if mean ; Engines, if great. The hands must be the Chyrurgians or his assistants, as there needs a small or somewhat greater extension ; but bands where it is requisite, by reason of the greater contraction of
the

the muscles, to make a more forcible extension. In which things you must observe first the figure; namely, how it must be roled; whereof (because it cannot be expressed in words) see *Oribasius* his book of bands. 2. The matter which must be strong, soft and tractable; such is Buck skin soft and dressed, of which they make breasts; then they are smeared with unguent *Pomatum*, that they may be tractable. Some use, for want of leather, linnen cloath a little rubbed. 3. Where they must be bound; namely, on the place that is farthest off from the joint dislocated, lest the muscles should be bound, or else torn in more violent extension, where under the dislocation there are two joints; besides *Hippocrates* ties a band about both those joints. See Table XXVI. Fig. I. Mechanick Engines, which are chiefly necessary in old dislocations, or such which are not reduced the first three daies, are 1. the Ladder (Table XXI. Fig. III.) 2. The *Glossocomum* or *Ambi* of *Hippocrates*, (Table XXI. Figure I.) 3. *Hippocrates* Form (Table XXII. Figure IV.)

Hippocrates shews the manner of extension. 1. *de fract* 1. when he saith that the Chyrurgian must make extensions (which by drawing are made divers waies) the most streight that possibly he can: Wherefore he must observe a right line. both by reason of the bones, as also of the ligaments and muscles, in respect of the *Fibræ*: For keeping these parts in a right line, as they lie naturally, extension is made without pain or difficulty.

Also the Chyrurgian shall excellently well know the quantity of extension, when he is not ignorant out of what place it fell; which way it slipt forth; to what place it is fallen, and where it rests: when extension is almost made, the swoounding of the Patient, or of the standers by, must not hinder the operation.

The bone is set into its place, by the hands of the Chyrurgian or his servants, which must be moderately anointed with some soft unguent, or with oil of roses. Reduction is made either by circumgyration. or by forcing it back to the opposite part to which it is fallen. These motions are not alwaies necessary, for sometimes, when extension is made, if the muscles that were before contracted be only relaxed, the joint will easily of its own accord return into its natural place.

Now the signs of a part that are well set, are these: First a natural shape of the part, when there is no hollownes nor swelling that appears about the joint, as there did before it was set; but in all things it must be like the sound part, or not far unlike by reason
of

of a flux of humours. Secondly, there must be abatement of pain, which is an inseparable sign, for alwaies when the pain is ended, it is a sign that the bone is reduced; but it follows not on the contrary, the bone is reduced, therefore the pain is ended; for sometimes the pain may abide, because the muscles were very much hurt at first. Thirdly, as some say, the crack that is perceived by the Patient, and the standers by, when the bone falls into his socket; but this is a false mark, and never to be wished for, because that crack is sometimes made, when the joints are extended and drawn too far; oftentimes also the crack is made, when the brims of the bone are broken by the mutual clashing of the bones, after which there succeeds difficulty in motion.

In the first binding and all the rest, two things are principally to be observed; namely, the figure of the part affected, and the ligature it self; which will preserve the joint in its socket, and will hinder inflammation that is near at hand.

In the figure we must observe the fashion of the joint, not only that is reduced, but also of the whole part; for as some figures are natural and without pain, so some are unnatural and painfull: The figure of the arm without pain, is bended, as of the foot extended right forth, Table XXVI. Figure II and III. *But note that the said Figure must be ordered to the part before it be bound: namely, that the bands be not too loose, or bound too hard.*

The Ligature must be made with linnen bands, because they bind better than those that are made of woollen; they must be soft, that they may cause no pain: they must be equal, that they may bindequally every where; and they must be clean, that the humours which issue forth of the joint, may be known by the colours. The latitude of the bands doth vary according to the parts that must be bound; for the thicker parts require the broader bands; and the thinner those that are narrower. In the thicker parts (namely, the thigh and the knee) they must be four fingers breadth of the sick party, broad; in the thinner parts (as the leg, shoulder, arm and hand) three; in the most slender parts (as the fingers) they must be, at the least, two fingers broad.

Bands are distinguished by *Galen* into inward bands, such as bind the joint under the plaisters, and are called under-binders; and outward bands that are put above the plaisters: *Hippocrates* useth two outward bands, and two inward; though sometimes
one

one band sufficeth; namely, when the joint is not easie to slip out.

The length of the bands is divers, in respect of the variety of parts to be bound; upon the arm the length of the bands must be three cubits (by a cubit I understand the space from the top of the middle finger of the sick party, so far as the joint of the elbow) for the legs, they must be four cubits; for the shoulder, nine; for the thigh, twelve; and for the fingers, less by two fingers length. The bands, that beside their binding they may hinder inflammation, must be wet with sharp Wine and oil of Roses mingled together; because, being dry, they will not stick long fast together. Others moderately anoint the bands, very happily, with the moist cerat of Hippocrates, which Galen describes *Lib. 6. de compos. med. per Gen. Cap. 4.* It is called *Ceratum*, from the wax that is mingled with it; and moist, because it is soft by reason of the oil.

The proportion of the wax and oil, is this: To take one part wax, and two of oil; or take one ounce of white wax, and two of oil of Roses. Here we must avoid those medicaments that are made of astringent powders, and the white of an egg; because they either cool and dry the joint too much, that the bending of it is hindred; or they hinder the humours, that are flowed into it, to come forth. The binding of the joint dislocated, is common to fractures; but after what manner it must be made, I shall shew underneath, in the cure of a simple fracture, and Table XXIX.

The Deposition of the part is threefold, Alligation, Suspension, and Collocation: Alligation as according to *Paulus*, the Arm is bound to the Thorax, in a laxation or fracture of the shoulder or arm. Suspension, as when the arm is hanged, by a linnen cloath put about the neck. Collocation, as when we place the part affected, upon any part of the body, as the Arm upon the Thorax, or upon some furniture laid into a capsula. We use Alligation and Suspension for the upper parts; but Collocation for the lower parts. But the Deposition must be after the mean figure of the part; soft (therefore the case is filled with hards, that the Patient may be at ease) equal (for a great inconvenience may arise out of a small inequality) and it must lie upwards, that the humours may not run to the affected part, and cause inflammation. Table XXVI. Figure II and III. After good binding, and deposition of the part, there is required rest also; for that the Ancients were wont, when the thigh was out of joint or broken, to make a hole in the bed and blankets,

blankets, that the sick might void their excrements through that hole, that they might not be constrained to move.

Religation is necessary; 1. If the part be not rightly bound about; which appears if it be bound too straight, from whence a hard tumor ariseth in the extreame parts of the part dislocated; or too loosely, which is known when there appears a tumor neither good nor bad; that is, neither mean, nor great, nor hard. 2. If there be itching or pain, that itching proceeds either from things according to nature, as from a more hot temperament; or from things preternatural. For this reason, the bands being loosened, let fair water be poured upon the part; not only that that itching may be abated, and the watry humour dissolved, which remained pressed in by the ligature; but also that the ligaments may be corroborated, whilst the water drinks up those moistures collected. Wherefore unless the ligature be ill made, or itching be troublesome, let the part remain unbound until the seventh day. But if the ligature be made too straight, you must let it loose the second day, if it be too loose the third day; but if there be an itching, you must let it loose the third or fourth day at furthest. On the seventh day, which is the term of the inflammation past, the ligature must be let loose again; and luke-warm water must be poured on again (not too hot, which might loosen the ligaments) but the bands are not any more to be made wet in the aforesaid liquor, nor to be smeared with cerat of roses, because the inflammation is over; but the seventh day shews the corroboration and consolidation of the joint, and therefore there is need of a medicament that is drying and very astringent. Yet if on the seventh day there is yet suspicion of inflammation, then until the eleventh day we must forbear the application of strengthening medicaments. Such are: 1. *Medicamentum Catagmaticum Moschionis*, the description whereof Galen hath *Lib. 3. de comp. med. sec. gener. cap. 9.* 2. *Cerat. Diapalma.* 3. *Cerat. Barbarum*, which is excellent in winter time. 4. *Emplastrum Catagmaticum Renodæi*: These medicaments, before they be applied, must be softened either with the moist cerat of roses, or of myrtles, for a soft chafing of the part affected. Gentle chafing being made, the joint must be moved easily to this or that place, that the humour, bred in the joint, may be pressed forth without pain. These medicaments (not weak) when they are spread upon linnen, must be applied, and the ligature must be made somewhat straighter than

than before. After this binding, the part must not be unloosed untill the end of the cure. To know the time when dislocations are cured, you must understand that there are three degrees of joints; for some are small, and easily to be reduced; some are mean, and of more concernment; others are great, and hard to be reduced. The cure of the first joints of any finger, is performed in fourteen daies; of the second joints of any finger or toe, at the end of the foot or hand, in twenty daies; but of the third joints of the rest in forty daies: Wherefore the joints of the fingers are sodered together in fourteen daies; and therefore in the dislocation of such joints, from the seventh or ninth day, untill the fourteenth day, we ought not at any time to untie the bands in the rest; we must wait for the time of healing, unless itching or small ulcers, or some humour collected between the head of the joint and the cavity, do shew that we must unbind loose ligatures, which must be repeated every third day. After this manner we must proceed untill the part seem to be strong enough, at which time the ligature must be untied; and the part that was dislocated, must be fomented with a decoction that may strengthen it. Take of Camomile flowers, red Roses, Rosemary, Lavender, leaves of Sage, Betony, Willows, Germander, *Iræ Arthritica*, Centary the less, Wormwood, of each half a handfull; red Wine moderately sharp, six pound; the sweet ly of Barbers, three pound; let them boil untill a fourth part be boiled away: afterwards laying the cerat on for some daies, without binding, the part restored must be kept in the mean posture, Table XXVI. Figure II and III: Then we must give warning to the Patient, that he shall begin moderately to exercise his usual operations.

The Cure of a dislocation with inflammation, rising before or after setting of the part.

IF inflammation urgeth us before the part be reduced, there will be two indications; one of dislocation, and the other of inflammation; but because inflammation is most urgent, we must first take care for that; for if we should first attempt to reduce the part disjoined, there would follow convulsion or a gangrene of the part, to which a sphacelus would succeed. Wherefore in this case we must forbear to reduce the dislocation, and

and the part must be placed in a mean posture, that is not painfull at all. Table XXVI. Fig. II and III. premising universals, and things preternatural being well disposed; and the belly being kept loose with glysters, we must lay on the part affected fat wool, and we must continually pour on hot water and oil, wherein there is plenty of hot water, and plenty of oil of Roses. For hot water will discuss the humours, will loosen the parts, and will ease the pain; oil of Roses will mitigate the pain, and by repelling will hinder the increasing of inflammation. Also the pain will be eased with new shorn greasie wool; and inflammation is hindred. But because, when inflammation ceaseth, the humours collected are somewhat thickned, therefore, about the end of the inflammation, we must chafe the part gently with our hands, first anointed with oil of sweet Almonds, or with common oil; and then we must lay on the Cataplasme of Nilus, or Nileus, which Galen describes Lib. 8. de comp. med. sec. loc. cap. 5. and these are the best when the inflammation declines, by reason of the wax, Ammoniacum, Oil, Saffran and Vineger; than which there is nothing better to soften, call forth, and to discuss. But since these things are not common in all shops, lay on Emplastrum Oxycroceum Nicolai, which likewise softneth, discusseth and draweth from the bottom; therefore this is excellent to be used in the place of the former. The inflammation being overcome, let the part be extended, reduced, bound and laied as it ought to be.

If inflammation succeed after it is reduced, which often happens, both by reason of violent extension, and also of perpetual pain; a slender diet must be ordred, and a vein opened, and a purge taken, and the ligature must be forthwith untied (*though it fall out on the first or second day*) and likewise water and oil very luke-warm must be poured on, untill the Patient find some relief thereby. After this let the part be bound somewhat looser, and with fewer swathes, wet with water and oil. This must be done every day, untill such time as the inflammation declines, which happens for the most part on the fifth day. When the inflammation declines, we must apply the aforesaid Cataplasms, or Oxycroceum Nicolai, to resolve the remainder of the inflammation, with a Ligature yet more loose. But when the inflammation is taken away, you must observe the way of cure prescribed for a simple dislocation.

The Cure of a dislocation with a Wound, and the bone either only uncovered, or yet sticking forth a little without the skin.

IF the joynt be dislocated, so that it is either uncovered, or a little thrust forth without the skin; the accident is mortal, and of more danger to be reduced, than if it be not reduced. For if it be not reduced, inflammation will come upon it, convulsion and sometimes death. 2. There will be a filthiness of the part it self. 3. An incurable Ulcer, and if perhaps it be brought to cicatrize at all, it will easily be dissolved by reason of the softness of it; but if it be reduced, it brings extream danger of convulsion, gangrene, and death. But some Men fear these kind of dangers in great Joynts only (namely, the Wrist, Arm, Shoulder, Ankle, Knee, and Thigh) which by reason of the strong Tendons, and the greatness of the ligaments and vessels hinder Reduction; unless the Patient and the standers by; having heard of the great danger, do press to have it done, which the Chyrurgion must attempt either the first, second, eighth; or ninth day, that he may not appear to be ignorant in Chyrurgery, but not in smaller joints, as the Fingers, Toes, and extremities of the Hand; which *Celsus* reduceth likewise foretelling the danger, first looking to the inflammation and convulsion, then to the Wound and dislocation. Whether therefore a greater joynt cannot be reduced; first care must be taken for universals and diet, and the part without all extension or binding must be placed in a mean figure, either hanged from the Neck, or else gently laid down in a Capsula, that it may remain immovable and feel no pain. Also inflammation and convulsion that are at Hand must be hindered, with some medicament that easeth pain, concocts, cools, and repels. Such a Medicament according to *Hippocrates* 4. de Artic. 6. Is a Cerate with pitch, which is extended upon a plaister that was wet with sharp black wine and warm; first pressed out, and laid warm to the Joint.

The Cure of Convulsion arising after the reduction of the Joint.

IF when the Bone is set, Convulsion come upon it, the Joint must be presently let loose again, and must be very well, for a long

long time made wet with plenty of warm water or Oyl: Also the whole Body must be heated that it may be forced to sweat, and all the Joints may grow hot; because they all sympathize together: Also the beginnings of the Nerves must be anointed; namely, the Nape of the Neck, Back-bone, the grains, and Arm-pits, with Oyls and Unguents which are proper against Convulsions. †

The Cure of a dislocation with a Callous, which hinders the reduction and motion of the Joints.

IN joints that before or after the reduction are ill handled, a Callous easily grows; especially in those that are not compassed about with much flesh, as the Elbow, Knee, and Foot; other Joints sometimes, but not so easily, are troubled with a Callous, because they are more fleshy, and they easily discuss the sanguine humour which falls down for the nourishment, and more facile motion of the Joints. Now the Callous is either hard, or as hard as a Stone, or else not so hard and Stony. There are four marks of a stony Callous. 1. The Joint is seen to be most slender and most dry. 2. The Patient cannot move the Joint, nor yet the forcible Hand of the Chyrurgion. 3. The slenderness and thinness of the part is continual. 4. There were applyed medicaments that were too cold, very astringent and drying, whereby the aforesaid humour was turned into a Stony matter. Also there are four marks of a Callous simply hard. 1. If the Disease be new, for when it grows old, it becomes like a Stone. 2. Though the Patient cannot move the part, yet the Chyrurgion can. 3. If fit remedies were applied to the Joint. 4. There will be some Tumour in the part which is hard, but not so hard as a Bone.

The Stony Callous will not be cured by *Celcus* his way without danger, wherefore it must be left as it is. But the cure of a soft Callous, or not so hard, is this. First, Empty the body by purging and bleeding. 2. Let there be ordered a good rule for diet, and other not natural things. 3. Let the part be softened with Oyl, or with this medicament following.

Take Marshmallow roots 3 ounces.

Of wild cucumbers 2 ounces.

Leaves of Mallows,

Marshmallows, alike two handfull.

Linseed,
Fennegreek,
Fat Figs, of each 3 ounces.
And one Weathers Head.

Boyl all these in a sufficient quantity of pure water, until the flesh of the Head part from the Bones; and with the steem of this, let the Joint, with a Callous, be fomented for some days: after fomentation, let the part be chafed for a third part of an hour long, the hands being first anointed with Oyl of sweet Almonds and fresh Goose-grease mingled together. After the chafing, lay on the Plaster of *Nileus*, spoken of before; or *Oxycroceum Nicolai*, tempered with Goose-grease. After three or four days, for the softning, and discussing of the Callous, the fume of Vinigar is commended: Wherefore *Galen* takes a fire-stone (or for want of this, a mill-Stone) which he makes red hot in the fire; afterwards he pours Vinegar upon it, wherein some piece of Gum Ammoniac is steeped, that the steem rising from it, and received for a third part of an hour, may not only attenuate the Callous, but also often I it: Attenuation being made a Cataplasme must be laid on; either this that follows, or one that is stronger. Take Barly, Bran, and Oxymell simple, what is sufficient to make a Cataplasme. Note that the sick Patient (if the Joint be reduced) must move his Joint as much as possibly he can, between the use of emollients and discutients, for by this motion the Callous is digested. If the Joint be not yet reduced, and a Callous arises, this must first be cured, and then the Joint must be reduced; as I said in a simple dislocation.

The Cure of the dislocation of a Joint, which after it is set, slips again, of it self, out of its place.

A Joint slips out for three reasons. 1. When after a violent dislocation, the Joint is ill set, and the Ligaments are not well dried. 2. When some Tumour that arises from inflammation, and is ill cured hinders it, that the Joint cannot be contained in its place. 3. when a humour runs to the Joint, which relaxes the Ligaments. The first cause requires greater driers: The second shews emollients and discutients, of which I spake before: The third is worst of all; which (after that the body is purged by medicaments, a vein opened, and a good diet used) requires adustion, than which there is nothing better; for this cauterizing first consumes all

those moistures by a hard crust, which makes a hollow Ulcer, which being covered with a cicatrize, contracts the part relaxed; for by cauterising we heat, dry and digest the humours. But we must note. 1. To burn the place to which the Bone falls; as if the shoulder fall under the Arm-pit, the burning must be made under the Arm-pit, If the Head of the Thigh be out of Joint to the fore-part, the fore parts must be burned in many places. 2. The nervous parts, ligaments, veins, arteries, and glandulous parts, must not be burned for fire is an Enemy to them; for by reason of their dryness a wonderfull convulsion follows. 3. The burning must be made with Iron tools, which make no great Escars; wherefore small Iron Instruments must be chosen like to Olives, with sharp points, and well fired red hot. That after this burning the Joint may rest for many days, for if it should slip out again, the disease were incurable.

The Cure of the Elongation of a Joint.

WHen a Joint is lengthned, the more loose ligaments must be bound up with medicaments, not cold (for these make the Joint stiff and unfit for motion) but hot. And seeing there is no single medicament that hath the force to heat and to bind also, we must apply some compound, as is the plaister of Rams skin, But if the cure succeed not by medicaments, there is but one remedy left; namely, that the outward skin, on both sides (taking care then of the aforesaid) must be burned with small Iron tools, made excellent well red hot; afterwards the part must be bound up with bands proper for it.

The Cure of a simple fracture.

A Fracture overthwart or obliquely, is cured in four things. First, By reduction. 2. By preserving the part reduced. 3. By the ingendring of a Callous. 4. By corroding the accidents, that come upon fractures. Reduction is performed by two things, namely, Extension, and Conformation, either by force, or by fitting the parts together.

Also in Extension we must consider. 1. where. 2. when. 3. the manner. 4. the Instruments. 5. the quality. 6. the quantity.

Where there needs Extension; namely, when the parts of the broken bone do not yet lie right, but one lies over another.

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The time is best, if we extend presently, so soon as we know the fracture; for if that be not done, there is presently a great flux of humours, by reason of the vehement pain, and the muscles are drawn toward their beginnings, and so extension becomes difficult; and if we go about it, the broken bones do prick the fleshy parts that lie near unto them, and inflammations, convulsions and other evil accidents follow. Yet extension may be attempted before inflammation come; namely, on the second or third day; on the fourth day and the days following (until such time as fear of inflammation be over) *Hippocrates* forbids to make extension. But the latter Chyrurgions, that they may lessen inflammation, ease the pain, and may soften the muscles that are contracted toward their beginnings, do moisten the broken part with hot water: Others take Oyl and water, or the decoction of Mallows, Marsh-mallows, &c. And with the vapour of these they do foment the part, for a whole hour together. Where you must note that at the beginning of this fomenting, the part effected will swell extreamly: but when you have fomented a while, not only the tumour raised by the steem, but also that which was before which hindered the extension, will vanish also. And the skin of a Calf newly killed, is an excellent remedy; or any other creatures skin bound about it whilst it is yet hot, and kept for some hours about the part broken, for it hath a notable digesting force; softning and easing pain.

The Manner. The broken part is kept in a mean figure, with instruments necessary for extension both below and above the fracture, and it is drawn most rightly both ways; namely, upward and downward.

The Instruments, sometimes are only the hands of two assistants that are strong, where the attraction is gentle, Table XXIX. Figure I. Sometimes strings of linnen or leather, where we must draw harder, Table XXIV. Figure I. And sometimes Engines, where we must extend with the greatest force, Table XXV. Figure I.

The Quallity varieth according to the magnitude of the bones and muscles. Whence it is that the radius requires the least extension; the bones require greater which are in the top of the Hands and Feet: Yet greater the Arm and the *Fibula*: The Shoulder and the Leg require greater than they; and the Thigh-bone the greatest of all.

Moreover in every bone a stronger extension is endured. 1. In a soft body rather than a hard body. 2. The first day rather than the days following, when the fear of inflammation remains. 3. An old fracture than a new. †

The Quantity ; the part is extended right forth, until such time as the bones are placed right one against another, and do not touch one the other. †

Conformation will be made well ; If, whilst the Instruments that extend, are slackned by little, and little, and the part is kept in a mean posture, the parts of the broken bone, which do not yet lie right one against another, are set exactly right, and the prominent parts of them are hid in their proper cavities, by the hands of the Chyrurgion, sweetly and gently without any violence at all. † Table XXVI. Fig. I. This operation succeeds excellently well, when the member made conformable, is like to the sound member in figure, and we can feel no inequality by handling of it, and the vehement pain is ended or abated. †

Conservation of the fracture now reduced, consists in binding and hindring of inflammation, by topical means ; binding is made with Bands, Splents, and Ferulaes.

Bands, Tab. XXIX. E. F. G. Are provided of old linnen rags and such as are worn with using, that they may be the more tractable ; yet they must be strong, least being extended they should tear ; they must have no seams or knots, that they may bind equally and without pain. But the breadth of the bands is known by the magnitude of the part : for the thicker part requires a broader band, and the thinner those that are narrower.

The length must be as much as is needfull ; namely, that the binding may comprehend a great part of the sound part ; both above and beneath the fracture, made with requisite circumvolutions, which must be as many as are requisite to strengthen the broken part.

Splents, Table XXIX. Letter I. are linnen cloaths (the Antients made them of hards kembered out) often folded together ; and they are called Splents, because they are like the Spleens of brute Beasts, which use to be long and narrow ; others call these cloaths Plagets : The Antients called them *Plumaceolos* or *Pulvillos*, small feather bolsters or cushions, because they made them of feathers sewed between two linnen cloaths. These Splents must be so long, that they comprehend all the ligature ; for if they should be shorter, they would not defend all the circumvolutions of the ligature : But the

the breadth of them must be the breadth of three or four fingers of the Patient. As for their thickness, they must be three, and also sometimes four double, where there is need of more strengthening. And when they must compass the whole part about ; so many must be taken as can go round about the part. Whence *Hippocrates lib. de offic. medic.* Let the length of the Splents, breadth, thickness and multitude be thus. For length let them be equal to the ligature ; their breadth must be three or four fingers broad ; their thickness must be three or four-fold double ; their multitude that they may go round about, and they must be neither more nor fewer. And Galen in his Comment upon this place, in this speech which *Hippocrates* now makes of fractures, first he mentions Plagets, and Splents, so called from the likeness of their form to Spleens ; which he commends to be made so long, that they may equal the ligature, for that they are used to defend that ; namely, that they may hold that firm and unmoved ; so broad, as that they may equal three or four fingers breadth of the Patient to be bound ; so thick, that they may be three or four double, four double where the ligature needs more strength ; but, where less strength is required, he supposes that thrice double may serve the turn. But he advises to use such a number of Plagets, that they may compass the part bound, round about it.

Ferulaes are light chips of Wood, Table XXIX. K. (which are laid upon bones broken or out of joint, after that the time of inflammation is past, that they may strengthen the fracture the more) not much unlike to Plagets. The Antients, amongst whom *Hippocrates* was the chief, made these Ferulaes of the bark of the woody shrub Fennel-gigant, or else of the boughs of it divided in the middle, whence they came to be called *Ferule*. For this wood is most fit for this purpose, because it is most hard, and therefore the Antient made walking staves of it to lean upon : We, for want of this shrub (because in Germany and colder Climates it cannot be had) provide, with excellent success, Ferulaes of the lids of Chests which Apothecaries and Merchants use to put their Merchandize in : and if we cannot get those covers neither, excellent Ferulaes are made of old scabbords for Swords, which because they are covered with Leather, they are hard and smooth. *Hippocrates lib. de offic. Medic.* sets down the good condition of Ferulaes : Moreover it is necessary that *Ferulaes* be smooth and equal, and crooked about the ends, and on both parts of the ligature a little shorter : but thickest of all where the fracture breaks forth. He will not have them to be sharp but smooth, that they may be draw : sometimes :

Upwards, and sometimes downwards, sometimes right out, sometimes obliquely as need shall require; not wrested aside, which may turn aside the ligature and the part; but equal, that they may equally compass it about; they must be flat upwards about the ends, that is at the lower ends lightly pared away, that they may bind the more in the place of the fracture, rather than upon the sound parts, which being pressed will feel pain and be inflamed: At both ends where the ligature is made, somewhat shorter; for the same reason, that they may not press those parts which are sound at the ends, and so cause pain and inflammation. *Galen comm. 3. de Chyrg. offic. text. 11.* writes; But it chiefly concerns a fracture, that the Ferulae be neither sharp nor wrested aside, because both ways they press; but those that are wrested, have this over and above, that they wrest aside the ligature; which being wrested, the part broken is wrested aside also. He also counsels to make choice of such Ferulae which are flat upwards at the ends; for those that have always the same thickness even to the end, and are equally bound on that part, are better than all others are: But this is not expedient at all to be done, when he will that the Ferulae shall bind faster in the middle of the Ligature; and from thence, unto both ends they should be more loose, and at the ends loosest of all. He will also that they shall be shorter, for length, than the binding is, that they may not touch the skin beyond the Ligature; which, because it receives oftentimes the humours pressed out by the bands, becomes more swoln. He will have the Ferulae to be thicker where they lie upon the fracture; because that place, above all the rest, stands in need to be pressed down by them.

Inflammation at hand, is hindered by Anodyns and repelling Medicaments applied outwardly to the part. I, with happy success, always use a Medicament which is compounded of sharp Wine, Oil of Roses, and the whites of Eggs beaten together with a spatula, when they are mingled in due proportion: If pain be urgent, I leave out the whites of Eggs, and I mingle Oyl with the Wine in greater quantity. When this Medicament is used, I wet my hands in it, Table XXIX, E. F. called *subligamina*; and I press it out again, Table XXIX, H. according to the admonition of *Avicenna*; who, *Lib. 4. Fen. 5. tract. 1. cap. 5.* Concerning the cure of a dislocation, commands that we should be carefull, that they be not laid on hot and dry. For when they are hot, they heat, and by heating draw out humours; and being dry, they do not stick fast together.

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Wherefore Extension being made, and the fracture composed, all things provided necessary to bind withall, the part which is yet extended divers ways, must immediately be roled about with swathes drawn upward and downward. But at first we must make three circumvolutions of the first band above the fracture, and make so great a compression, as may suffice to strengthen the bones; then toward the supperiour part, namely, the sound part, the Ligature must be brought, by little, and little, diminishing the compression. Table XXIX. Fig. I. When we have taken in sufficient of the sound part, there we ought to end the binding of it. Then we must take another swathe band, that is longer than the former, that it may come to that place where the first band ended; and one or two circumvolutions must be made (the contrary way; for if the former were toward the right hand, this must be toward the left hand) upon the fracture; and from thence toward the the lower part, the binding must be brought; diminishing likewise the compression, by degrees, as we did before. But the circumvolutions of this swathe must not be so many, because we do not here fear the extreame parts so much, and when we have taken in sufficient of the sound part, we must then leave off to make any more circumvolutions toward the lower part. Table XXIX. Figure II. The bands return by the fracture, with more seldome circumvolutions, until they come so far as the end of the first band. But because these two bands, now roled about, are too weak to hold the fracture, Splents must be applyed about the fracture, and the whole part; namely, according to the length of it, to be laid on long ways; not that one shall be put upon another, but that betwixt one Splent and another, there be so much distance as a fingers breadth of the Patient himself; these must be made fast with a third ligature from a double end, so that the first circumvolution must be made upon the fracture; then the other end must be brought toward the upper parts, with more frequent circumvolutions; and the other end toward the lower parts, and the circumvolutions must not be so many; then again from the lower parts upward, untill we come to that place where the other end of this swathe came to an end. Yet both ends must be so often roled about, that the ends of the Plagets may stick forth a little at each end. Table XXIX. Fig. III. It shall be the sign of convenient ligature, when the Patient reports that it

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is bound firmly; but not pressed, and more upon the part hurt, than upon the sound part, and least of all toward the extreame parts. †

After convenient Ligature, there succeeds good Deposition; which is the middle figure, soft, equal and tending upwards. Wherefore let that the part is bound, be laid in a wooden Capsula that is filled up, being wrapt in kembed hards and linnen, and so let it remain until the third day; if the Patient that day he is bound, and the night following, seems to himself to be bound more streight, and on the second day less; besides this, there will be a soft and small Tumour on the extreame part; for a great and hard Tumour shews that the Ligature is naught, and too streight, and that there is at hand fear of inflammation and of a gangrene; whereupon the sick must be presently unbound, and be bound again, but more gently. †

If on the third day, after binding the part, the bands seem to be too loose, they must be unbound again (but we must observe that when we must unbind the Ligature, before the Bones be at all knit, the windings about of the bands, are not to be unbound by little, and little, but the part must lie still, and the linnen and bands must be cut, untill such time as the upper part being uncovered, you may take all things away, the part not being lifted from its proper place. For there is no need to lift up the part, and to let it lie pendulous, and so to handle it, *for no good can come to the Patient by that;* untill the Medicaments be applied, and the part be again roled about with bands; and the part that itcheth must be often sprinkled with warm water, that the smoky vapours detained in it may evaporate: After that the part must be bound with a Ligature which is moderate, yet a little streighter; and let it be laid into the Capsula until the seventh day, at which time the bands must again be unbound, and the part must be sprinkled with water, and bound again with bands, yet streighter drawn together; but so that they may suffer life and nourishment to pass to the extreame part of the member. Wherefore apply to the broken part the Cerate *Diapalma*, or *Emplastrum Catagmaticum Renodæi*, either spread upon one broad linnen cloath, or upon many narrow pieces; and upon this bands having but one end, and wet with sharp Wine, and pressed forth again; and above these must be plagets, first wet in Wine and pressed out, and then wet in the white of an Egg beaten;

beaten; and last of all, must be a roler with two ends wet in the same Wine. These things being duly performed, because at this time, most commonly, the fear of inflammation ceaseth; the more to strengthen the fracture, Ferulaes (which cannot safely be bound on to preserve the Ligature, until the seventh day be over, for fear of inflammation) with Plagets round about that stick forth at each end of the Ligature above, must be laid on all the length of the part, with Bands L roled about them exceeding loosely: In this order, that first they must be bound on the upper part: Secondly, on the lower part: Thirdly, upon the fracture, lest the binding should be more forcible upon the fracture, and should cause pain. Table XXIX. Fig. IV. Also, in applying Ferulaes, care must be had to any Bones that may stick forth, and out of the flesh; for laid upon them, they will cause pain and exulceration; Wherefore, let them be laid on the outsides of them, or let them be shorter. The part so bound must be kept unmoved in the Capsula, untill the twentieth day; unless Itching, Excoriation, Pain, or other accidents require the bands to be unbound, and a convenient application of Medicaments to be made. Notwithstanding, the Chyrurgion shall, every third day, come to see his Patient; and shall gently fasten the loose Ferulaes upon the fracture; having always that before his eyes, that Ferulaes are put round, not to press, but that they may defend and strengthen the binding that is under them.

But when this term is past, the Ferulaes and Bands must be bound hard; and the part affected, for the generation or nutrition of the Callous, must be fomented with hot water (until it swell, and no longer) then applying a Plaister for broken Bones, the Ferulaes and Bands must be bound more loosely (that humours that breed and nourish a Callous may increase) and the part laid into a Capsula, must remain there for two days; and then must be bound hard again, to try the quantity and quality of the Callous. The bands must be bound every fifth day after this, and the part being sprinkled with hot water, must be dressed with a Cerate, Bands, and Ferulaes, looser than before, until such time as the fracture may be confirmed with a moderate Callous; which is wont to be done in bones of the Arm, for the most part, in thirty days; in the Bones of the Shoulder and Leg, in about forty days; and for the Thigh, in about fifty days; yet

Yet none of these is certain ; for Nature differs much from Nature and age from age. †

† The Callous is bread of blood, which must not be drawn before the seventh day ; wherefore *Emplastrum Oxycroceum* is dangerous the first days ; by reason of inflammation present, or near at hand. To breed the Callous, others give broths, wherein the leaves of Agrimony, and the Roots of comfry have been boyled. Others give more glutinous meats. The new Practitioners above sixty years since, have found a Stone, which grows in the Palatinate, which is much commended, by the inhabitants of that place, to breed a Callous ; whence they call it *ισιουάλοι*. Concerning which read *Guillielmus Fabricius Hildanus Cent. 1. Observ. 90, 91. & 92.* and *Senertus Lib. 5. Institut. part. 2. sect. 1. cap. 7.* Outwardly not only *Ceratum Barbarum*, and *Diapalma Galeni* are safely applyed ; but also *Emplastrum Oxycroceum Nicolai*, and *Catagmaticum Renodai* : *Barbarum* and *Oxycroceum* must be laid on in Winter, *Diapalma* in Summer, and *Emplastrum Renodai* Spring, and Fall. Sometimes some symptoms follow fractures, as Itching, Excoriation, a Callous greater or smaller pain, smalness of the parts, or winding aside of it ; all which things require the Chyrurgians help. †

— Itching will cease if the part bound be fomented with warm water until it wax red ; and a little more, that the matter attracted, may be again digested. † When the part effected doth not conveniently admit the pouring on of cold water, it is with profit enough held over the fume of the water. Note that the scratching must be forbidden the Patient, when it doth itch, because it is the worst thing ; and besides Excoriation will attract humours, and raise very grievous pains. —

— Excoriation which often arises, when the unloosing of the bands is deferred longer than it ought to be ; and again when the Patients are impatient and scratch, is cured by the pouring on warm water, as I said for the cure of itching ; and by applying ungent *de Cerussa*, which cools and dries. —

Pain is mitigated by fomenting with Water and Oil, or with the decoction of a Wether's head, with cammomile flowers.

— The Callous is bred greater than it should, when the Patient uses a fuller diet than he ought to do, or the Physition is more negligent in the cure ; if he do not feel his Pulse, and if he bind the bands too loose. This is prevented if you take away from his diet, and the quality of the Callous be sometimes tried, and the bands bound somewhat streighter. It is diminished, first with emollient Medicaments ;

caments: and next, with emollient and discutient mingled together (such as were propounded for the cure of a dislocation with a Callous) until it come to a mediocrity. † A Callous that is too small, hath contrary causes, and therefore it is to be preserved by contraries. It is augmented with a more thickning diet, and attraction of the aliment to the part affected, by pouring on hot water (yet with that moderation, that whilst the part is yet lifted up, we do desist before it fall down again) and by the more loose ligature of the bands.

Extenuation of the part proceeds, either from the too hard binding of the bands, or for want of glutinous nourishment. If binding cause Extenuation, the bands must be bound looser: If want of nourishment be the cause of smallness, let nutriment be attracted by fomenting with hot water, until the part wax red; and then lay on some Pitch plaister upon it, spread upon a broad linnen cloath; and let it be oftentimes duly drawn off, taking heed afterwards that we bind not the bands too hard, which might again repulse the nutriment drawn thither. †

Distorsion, or ill conformation of the part, proceeds either from the neglect of the Chyrurgion, when he makes less extension, joining together or binding than he ought to do; or it is the fault of the Patient, when he stirs the broken part before the Callous is grown strong, or stands upon it; or else it is the fault in the fracture, especially when the Thigh is broken. *For the Bones of the Thigh, though you do draw them out by force of extension, cannot be held so by any bands; but when the first intention staks, they will run together again; for here the thick and strong flesh are above binding, and binding cannot keep them down.* † *Hippocrates de fract.* which *Celsus* seems to confirm, *Lib. 8. Cap. 10.* Where he writes of the Cure of the Legs and Thighs. For we must not be ignorant that if the Thigh be broken, that it will be made shorter, because it never returns to it's former state: And *Avicenna Lib. 4. Fen. 5.* Saith that it is a rare thing for the Thigh once broken, to be perfectly cured again. These words admonish us, that we should never promise a perfect cure of the Thigh; but rather, using all diligente, we should foretell, that it is doubtfull that the Patient will be always lame; lest when this shall happen from the nature of the fracture, or which most frequently falls out, from the impatience of the sick person, it may be imputed to our mistake; and instead of a reward, bring us a disgrace. — Also ill conformation may come by reason of the fracture, when a piece of the Bone is contained between both the

Bones

Bones that are broken, which may hinder them to touch one the other. The Bones that are dislocated, either by the Physicians or the Patients fault, must not be broken again (unless it cannot be helped, by reason of the great hurt done to the part in its operations) if the Patient be old and weak, the Callous be of long standing and hardened, and the Bone be great, as are the Shoulder and Thigh Bones. But if the hurt be great, the Patient be young and strong, the Callous new, not above six months standing; let the Callous be softened for fifteen days, with pouring on of liquid matter, with baths and emplaisters; and let the part be drawn at both ends, either with mens hands, Cords, or Engines, divers ways, as need requires, until such time as the Callous shall be broken, and the parts of the broken Bones can be fitted together with the palms of the Hands; After this, the fracture must be cured as I said before. If any piece of the Bone wrest aside the whole part, there must be incision made with a sharp Knife, Table II. Fig. II. As far as the broken Bone; and the splint of the broken Bone, which hinders the joyning together, must be pulled out with the pullers; and then the fracture must be fitted by extension, bound and laid down, as we deal with a new fracture. In the said Distorsion of the Thigh the Bone must not be broken; for it is better for a man to live and be lame, than to indure a dangerous operation, with great torments and fear of the same mischief.

But the distorsion of the Thigh is prevented, if the part be kept extended in the instrument called *Glossocomum*, Table XXI. Figure, IV. (which is appointed for this use in the next place) in, before and after the binding of it, until such time as the fracture be perfectly cured.

Of the Cure of a Shingle Fracture.

IN a Shingle Fracture, or that which is made according to the length of the Bone, the bands must be bound streighter than in other fractures; that the Bones broken, which are departed broad ways one from the other, may be brought again to a mutual and close touching one of the other, that they may not fall back again *Galen. Lib. 6. Meth. Med. Cap. 5.* Besides we must do all things which are to be done in an oblique or overthwart fracture. as I said.

And these things shall suffice to have been spoken of the cure of simple fractures, where the Bones do not stick forth, nor yet any wound is joined with them, Now I will briefly declare how a fracture

ture, with a Wound, must be cured. There are divers kinds of fractures with wounds; for either the Bone is made naked of the *Periostium* and the flesh; or else it is yet covered with them; in both again we expect that some great part, or small, or no part of the Bone shall come Forth.

A Fracture with a simple Wound

IN which, neither the Bone is made naked its coverings, nor any part of the Bone is come away: it is, cured as a fracture without a Wound; namely, 1. With convenient Extension. 2. With due joining together, and this is followed by a mutual touching together of the lips of the Wound; and by keeping them so, when they are thus brought together, by linnen cloaths that are Plaisters laid cross ways upon them, and by bands. 3. By Deligation. 4. By Deposition.

Yet here about the cure we must note. 1. That Extension be presently made, by a Chyrurgion, on the first, or at farthest on the second day; namely, before any great inflammation falls upon the part. If the Chyrurgion be not called seasonably; but on the third, fourth, or fifth day, in which the inflammation is near at hand, or else is begun, then extension must not be attempted until seven or a few more days be over, and in the mean while, the Physician shall use all the force he hath to prevent inflammation; both by removing the antecedent cause, by diet, and Chyrurgery, and Physick; as by taking heed to the part affected by Anodyns, Repellers, and convenient Deposition of the part as much as may be; and by covering the Wound with such things as shall cause suppuration. When the danger of inflammation is past, the fracture must be set either by Extension alone, or else by help of the Levitor also; then it must be bound with three bands, and a sufficient number of Plagets, and so laid down easily.

Secondly, The Extension must not be so violent, as in a simple fracture, because the fleshy, musculous and nervous substance, is already torn, bruised and hurt; for if we do otherwise, extream pains and convulsions will follow, with the greatest danger of the Patient's life.

Thirdly, The first band must be something broader than the Wound it self; especially at the beginning, from whence we begin to wind it about, that it may comprehend the lips of the Wound on both sides. For if the band be too narrow, then it would hold the Ulcer bound in, and would cause pain.

Fourthly,

Fourthly, The bands also must be bound less close than for a fracture without a wound ; lest the wound being pressed, pain and inflammation should arise ; and for the same reason, let them also be more soft than for a simple fracture. Let the part be untied the third day after extension and direction, and be bound again, yet so that the ligature may press it somewhat more (to make the part more slender) so long as the fear of inflammation remains, unless pain persuade to do otherwise. But in the second binding let not the ligature be made straighter, but rather looser, that there may be passage left for the Blood to come forth, which must be the matter of the Callous.

Fifthly, Ferulaes must not be laid to the wound ; and if they must be laid on, they must be placed on the sides of the Wound, and the opposite part, until such time as the Wound is cured. But it seldom falls out, that a simple Wound in such a fracture is not covered with a cicatrize, at the second or third dressing, or at least not filled up with flesh. When the Wound is healed, if the Bone be not yet strengthened, we must do as we did for a simple fracture. But if in the mean time, namely, on the eighteenth or twentieth day, or upon any other day, the Wound grows worse, and the fracture of the Bone threatens an impostumation (for the separation of the Bone cannot at first be foreseen always, unless the fracture wants its conformation, or the Bone lieth a long time uncovered) (which is shewed by much matter, which is not proportionable to the greatness of the wound, by the lips of the wound turned inwards, and by the dull flesh bred in the wound) we must consider whether the piece of the Bone be great or small ? If it be great, the signs propounded are greater ; if small, they are smaller. 2. Whether that piece which must part from the Bone be yet parted, or remain upon it still ? That is known, when the Patient, minding of it, finds a secret motion : or not minding of it, perceives a pricking pain : This, when the Patient finds neither secret, nor yet open motion.

A Fracture with a wound, in which the bone is not made naked; yet a great piece of the bone, or many pieces (as in wounds made with gun-shot) are known that they will come off presently, or else afterwards.

If they will come off presently, this requires a ligature that is of another fashion, and far different from the former, according to the most sudden separation of the bone, that the part may be daily bound and unbound, without any moving of the fracture. The most approved way of binding, is that of *Hippocrates*, whereby the matter is not stopt in, the fracture is strengthened, inflammation is hindered, pain is not caused, and the most speedy separation of the bone is procured. To perform all these things, let double Plagets be provided, made of linnen cloath, not narrower than that they may sufficiently cover the lips of the wound; as for length, let them be somewhat longer then to go once about the part; and let them be as many in number, as shall suffice to make a hatching ligature. Table XXVII. Figure VIII. These must be wet with a mixture of sharp wine, and oil of Roses, to ease pain, and to hinder inflammation; they are laid upon a broader linnen cloath, in that order that the middle Plaget may cover the next to it, and these the middle of those that are further off. These things being provided, and the fracture being joined, and a suppurative medicament being laid to the wound; namely, *Galen's Tetrapharmacum*, that linnen cloath with the Plagets so disposed, must be laid under the part to be bound, so that the middle Plaget must come under the fracture, Table XXVIII. Figure VIII. Then the Assistant shall hold one end of the middle Plaget streight, and the Chyrurgian shall hold another, which must be so brought about, that far from the ends they may cut one another circularly, and may bind the part that is hurt closely, as far as it is lawfull, rather than necessary, for fractures with a wound, and where a piece of the bone is to come away. The middle Plaget being brought into a circle, let also the first of the upper Plagets be brought about, then the second, then the third, and so forward untill we come unto that part, to which the first band, Table XXIX. Figure I. should ascend if there were no wound. These upper Plagets being fitted, we must likewise order the first of the lowermost, then the second, then the third, then the fourth, and so forward descending as far as the sound part, Table XXIX. Figure II. These medicaments

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with

with their Ligature must be applied (daily wetting the bands only with wine and oil) untill such time as the term of the inflammation be over; then by all means we must strive that the bone which is coming off, may be thrust out so soon as possibly it may be, helping nature by an injection of *decoctum divinum*, and laying on *ceratum sacrum* of Galen, upon the wound (that it may only comprehend the lips of it) and a *Diapalma* about the affected part. Note, lay on the plaister *Diapalma* with seven single Splints (be they more or fewer) and let their ends be brought round about, beginning at the middle one, and afterwards ascending and descending, as we use to do, with double Plagets. The Splints with the cerat being laied on, lay on the Plagets made of double linnen cloath, and wet in four wine, that they may stick the faster together.

The bone being thrust out into sight, and it being drawn forth with the Pullers, if it can be done without violence, the wound must be healed with *ceratum divinum*. But when the wound is brought to cicatrize, the part must be kept in rest, untill the fracture may grow strong, Ferulaes being laied round about it. Note farther, that if it be needfull to remove the bands, either for their foulness or hardness, the part must be lifted up; but it must be presently laied down again upon a broader cloath of linnen; upon which those small linnen cloaths doubled were already laid. Table XXIX, Figure VIII.

If the bone appear that it will not presently part, but will come away afterwards, the Ligature (which is made with three Bands and Splints) must be changed into a hatching Ligature, described even now, untill the bone do separate. The bone that is great enough (such as are those printed Table XXVII, Figure IV. and Table XXIX, Figure IX.) being parted, the circular dressing, with the plaisters (Table XXVIII, Figure VIII. in the leg) must be changed into a cross form (Table XXVII, Figure I.) and the Ligature must begin from the lowest Plaget, and must end in the uppermost (Table XXVIII, Figure X.) that the moisture, collected in the cavity of the bone separated, may be pressed out of the wound (which being thrust down, by the Plagets descending, would make a large hollow place) when the wound is brought to cicatrize, Ferulaes may be laid on to confirm the fracture. —

A Fracture with a wound, wherein the bone is made naked of the Periostium, yet it doth not stick without the wound.

THis is cured: First, By moderate extension of the part. Secondly, By convenient joining together. Thirdly, By fitting the lips of the wound to touch one the other. Fourthly, By fitting Ligature, Fifthly, By fitting deposition. In binding we must consider, whether any part of the bone will come off or not? None will come off, if the bone that was made naked, be presently covered with a skin again. Some will come off, if the naked bone be long exposed to the open air. If none, or but a small bone, will come off, the binding must be made with three bands and plaisters, as in a fracture with a simple wound, and wherein there is expected a separation of some small bone. If a great bone be to come off, the part affected must be bound with a hatching Ligature; as I said, even now, for a fracture where a great bone was to come away.

A Fracture with a wound, where the bone sticks out of the wound.

BEfore it be reduced, we must consider whether the bone, sticking forth, can be brought again to its own place, by help of due extension or not, without violence and danger of convulsion? And if it can be reduced without danger, let it be reduced; but if not, let it not be reduced. The signs of dangerous reduction are, great sticking forth, inflammation, and the part grown hard by contraction of the muscles: But easie reduction appears by a small bone sticking forth, when there is no inflamed tumour, and the part is soft. If therefore it cannot be reduced, of two evils the least is to be chosen; the naked bone sticking forth (with prediction of the shortness of the part that will be afterwards, lest that should be laid upon the Chyrurgian as his fault) must be nipped off with a pair of Plncers, Table XX. Figure I. and afterwards the fracture must be joined by moderate extending of the part. For it is better to make the part something shorter, than to leave the bones not join'd together, or to extend them violently; both of which would bring convulsion and death to the sick Patient. If the bone diminished cannot yet be set, by the moderate extension of the hand; that extension must be helped, according to Hippocrates, with a levitor or some cutting chizel, put in between the

broken bones, Table XXVII. Figure IX. The fracture being composed, the part must be bound as we said for a fracture with a simple wound. But we must cut a hole in the bands and plaisters just over the wound, that we may daily lay on medicaments upon a great wound. The reason why the bands must be made with this hole, is this, because a great wound, and therefore to be cured by the second intention, breeds plenty of *Atter*, and therefore requires often looking to; but the bone that is diminished, for fear of a new contraction of the muscles, forbids us to lift up the part often, or to unbind the bands; wherefore we must take the middle way, that we may satisfy both the fracture and the wound.

Matter.

I have cured very many with this way of binding; amongst the chief of them, there is a young man yet living, who about the twentieth year of his age, fell from a high place in the night, and broke both the fossils of his leg in the middle, with a great sticking forth of the minor fossil; which unless I had cut it off with a pair of pincers, Table XX. Fig. I. I could not possibly have joined the broken bones. This Patient, in four moneths time, began to walk with a staff; and he went afterwards as if he had never broken his leg, or had lost no part of the bone; which must be well observed, for it seldom happens that the Patient, with a double fracture, with a wound and loss of the bone, should not halt after he is cured. This kind of Ligature, though it require great diligence of the Chyrurgian, yet oftentimes the Patients cured shew themselves ungratefull: Wherefore it must not alwaies be charged upon the Physitians, that they are Mountebanks, who sometimes begin their cure as *Hippocrates* dictates, from taking a reward, and require that first,

Whilest the pain lasts, that when the sick man's well,
What he paid for it he may others tell.

When a small bone sticking forth can be reduced, without danger of convulsion and violence: first the part must be extended moderately: then the fracture must be composed; And if the bones can hardly be united by extension only, for fear of great pain and more dangerous convulsion, let not so strong extension be made; but let there be put, between the parts extended of the divided bone, the broader and the narrower end of a Levitor, that it, lying under that part of the bone which is most pressed down, and leaning upon that part which is most prominent, may help the extension, untill such time as the bones shall seem to be placed one right
against

against the other; then, by degrees, let loose the extension, and draw forth the Levitor.

If perhaps the bone, upon which there leans a convenient Levitor, hath in the upper part many broken splints, or something that is sharp, that there is no convenient place for the Levitor, they must be taken off with a sharp chizel, Table VI. Figure III. but this with the pincers, Table XX. Figure I. must be nipped off, that there may be a fit place made for the Levitor. When the bone is reduced; we must consider whether any part of the bone will come away or not? If it be reduced presently, nothing will come off; but if it be not set presently, something may come off. If nothing be to come off, the part affected must be bound (first laying a suppurative Medicament to the wound) as I said of a fracture with a simple wound. But if something be looked for to come off, we must order our Ligature, according to the manner appointed for a fracture with separation of a great bone. —

The XXIX Table.

Of the provision to bind a broken Leg, and Hippocrates his way of binding to be observed in dislocations and fractures.

Letter A. Shews a glass with four Wine, &c.

B. One filled with oil of Roses.

C. Three Eggs.

D. The beating of whites of Eggs.

E F. Two bands whereof Hippocrates writes, *de offic. Med. text.*

3. But being there are two under bindings of linnen rollers; one of them E ends from the place upon the superiour part; the other F goes down from the place to the inferiour part.

G. Is a Roler with two ends.

H. Shews the wetting of the bands, for it behooves to have the rollers not dry, but wet in some liquor. *Hippocr. de offic. Med. text. 16.*

I. Are the four folded Plagets, with the liquor pressed forth of them.

K. Are the Ferulae crooked upward at the end.

L. Are the Bands, wherewith the Ferulae are bound on.

G 3

Fig. I.

TABVLA XXIX

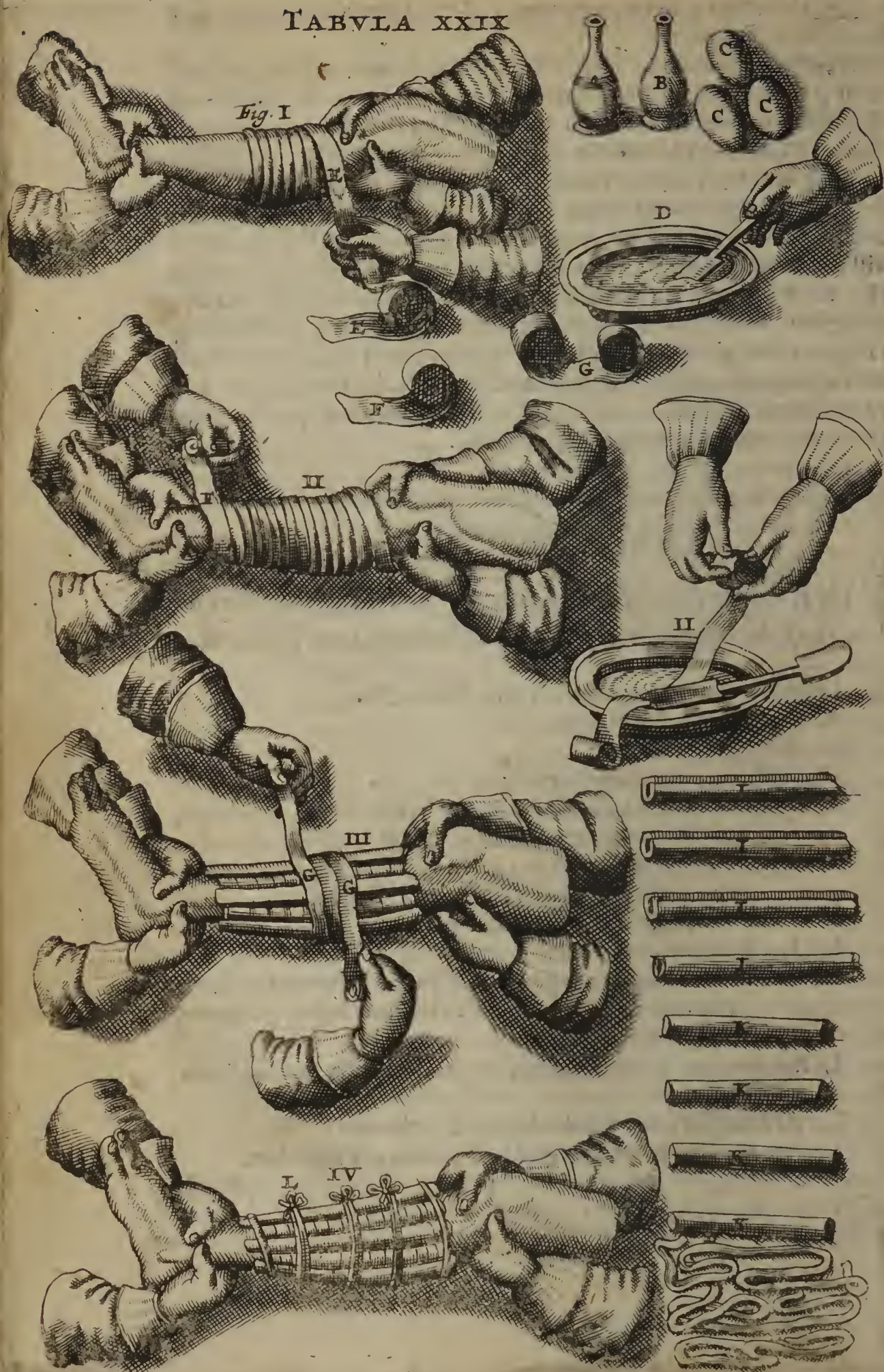


Fig. I. shews how *Hippocrates*, whilst the part is held stretched forth by the Assistants, roles the band E three times toward the right hand, about the part affected; and then brings it upwards, untill it come to a good part of the lim, with four or five or more windings about it.

Fig. II. shews how he winds about the second roler F, which is twice as long as the former, the contrary way (for the first is roled about toward the right hand upwards, this is wound about towards the left hand downwards) namely, once about the fracture; then again three or four times, or oftner, below the fracture, unto some convenient part of the member: The remainder of the band, which the Chyrurgian holds in his left hand, must be wound about upwards, untill it comes to the end of the first band.

Fig. III. explains how he laies the wet Plagets I all at length upon the fracture (so that betwixt one and the other, there must be not more than two fingers breadth distance) and he binds them with the band with two ends G; winding the end G * upwards; and the other G downwards, after that upwards, untill it come where that ended.

Fig. IV sheweth how, after the seventh day, whereon, for the most part, all fear of inflammation is past, he laies the Ferulaes with the Plagets, and the upper Ligature made by the band G; and binds them fast with three girts. For *Hippocrates de fractur. text. 23.* in these words describes the cure of broken bones; then at length *things necessary being first provided; the fracture being join'd; and the part yet being extended in a mean figure*) we must bind it with a linnen roler, laying the beginning of the first band upon the fracture, so that it may hold the fracture firm, but yet not press it violently. When you have wrapt the first band about the same place, the second and third time, you must carry it upward, that you may thereby stop the flux of blood from coming to it, and there let that end; and that band, in respect of the second, must not be long in comparison.

Text. 27. The other band, at the beginning of it, being wound about the fracture once, then must it be carried downwards, and not pressing so much, it must take greater distance in roling of it about, so that it may come unto that place where the first did end.

Text. 32. After this, Plagets smeared with some Cerate (or some other convenient medicament) are to be laid on, for so they will stick the faster and smoother. Which then must be so bound on with



rolers, (but a band with two ends, will perform the office of three bands) changing the order so amongst them, that they may be carried sometimes to the right hand, sometimes to the left hand, and very much indeed from the lower part upwards; and sometimes from the upper part they must be carried downwards.

Text. 41. But when, after the fear of inflammation past, you bind the rolers, you must lay on the Ferulaes, and they are to be contained with bands very loose, that they may stay only there; and that the laying on of the Ferulaes may not add any pressure to the part. And this shall suffice to be spoken in general, of the cure of a fracture and dislocation.

The XXX Table.

Of the preparation and manner how to burn a fontanel in the coronal suture, and the binding of it; also how to dilate wounds of the head cross waies, and to scrape away the doubtfull small chinks of the skul.

Here we should declare, whether the use of an actual cautery be convenient upon the coronal suture of the skul? But because *Julius Caesar Claudianus 3. Responsione Medicinali*; *Thomas Fienus Lib. 3. de cauteriis, cap. 22.* and *Marcus Aurelius Severinus, Pyrotechn. Chyurg. Lib. 2. p. 2. cap. 11.* have disputed this question, I will not do it over again, but I will proceed to explain the Figures of this Table.

Fig. I and VII. shew the provision of things necessary, both before, at, and after the operation; namely, divers instruments, a Cabbage leaf smeared with fresh butter; a three-double linnen cloath; and a roler having four ends.

Fig. II. the star, shews where the coronal and sagittal sutures meet; which meetings being covered with the hair, a thick skin and a membrane, the Chyrurgian can hardly find. For this most accurate invention, the Chyrurgians, both old and new, used divers waies; all which *Fabritius ab Aquapendente* recites, *de operationibus Chyurg. fo. 6.* I, reducing into one the manners used by the chief of the Arabians, *Avicenna*; and by *Celsus* chief of the Latines, do search out the conjunction of the sutures thus;

thus: I draw a thread from the middle of one ear, to the middle of the other, and again I draw another from the tip of the nose, to the crown of the head (Fig. III.) where these threads cross one the other, there is the place for the fontanels; which shaving off the hair, must be marked with writing ink, as the Figure IV. shews.

Fig. V. teacheth the way of the operation, where the Chyrurgian holds the instrument in his left hand, (a) not at all hot, wherewith he forcibly presseth the skin marked with ink, for the reasons I alledged before, Table I. Figure I. but in his right hand he holds the instrument (b) very red hot, put into the pipe (a) which because it hath also a cutting force, if it come to the skul, it must be turned about. And it is turned about, not only that there may be passage for the matter to come forth by the pores of the bone; but also that the *Pericranium* may feel no inflammation; which it will easily do, if the instrument be not turned about.

Fig. VI. is a band with four ends; whose two ends before (b. i.) are knit under the chin; but the hinder ends (k. l.) are to be sewed behind the head with a thread; lest the knot, whilst the sick lieth asleep on his back, might wake him by pressing that part; and watchings oftentimes are the cause of an inflammation of the *Peticranium*, which proves to be mortal.

Fig. VII. here you see a convenient use and binding of the band, to hold on the medicaments which are applied to the fontanel, burnt in where the futures meet. But to what end serves that great furniture of the first Figure, if two instruments only be sufficient for this operation? This serves to deceive the Patient; I cause a low seat with joints to be brought, such as Barbers use in their shops, turning the one side, either the right side or the left, toward the light and the windows, but the back toward the dore, and that for this reason; lest the sick sitting in this Chair, should perceive the red hot iron, when it is brought out of the kitchen. The Patient being rightly set down, I draw forth, into a wooden dish set upon the Table, the instruments (c. d. e.) but I keep the iron tool (a) close in my bag. The servant secretly delivers the instrument (b) to the Patient's maid; and gives her order to make it very red hot, and not to bring it, untill she be commanded to bring some live coles. These things being done, the servant doth shave away

so much hair of the head as is needfull, Figure IV. but I prepare the band, Figure VI. and a double linnen cloath (*f* Fig. I.) and other things necessary to be used after the operation; in the mean while I discourse with the Patient, concerning the excellency of this Chyrurgical operation (and if he be desirous to learn it, as it often falls out) I speak of the qualities of the instruments, and of other things which may keep up his mind from fearing the fire. These things being provided, I speak to my servant openly, that he should hold his temples firm, with both his hands (see Table XXXI. Fig. II.) that I, standing behind the Patient's back, may find the joining of the sutures with the threads (Figure III.) and having found it (Fig. IV.) I may mark it with ink. Whilest the place is marked, I call the maid to bring the fire-pan, and set it on the Table; and that she shall only moderately warm one of the iron instruments (*c. d. e.*) and I secretly receive from the maid, passing by me and coming to the Table, the iron instrument (*b*) very red hot; and so the Patient scarce taking notice of it (for he beleeves that the iron instrument, necessary to burn with, is not yet hot) I make a fontanel in the coronal suture. This way of deceit must be observed also, in making other fontanels, to hide the cautery, and to take off the fear of the fire.

Fig. VIII. is the furniture to dilate the wounds of the head, and to pare away the chinks, which do not pass through both Tables.

Fig. IX. in wounds of the head, with the skull hurt, first of all the hair must be shaved off, and the head must be moistned with oil of Roses. Yet with this caution, that neither the hair nor the oil go into the wound; for that is ill for any wounds of the head. Then let the wound be dilated in the form of a cross, unless the sutures hinder it: The next day after that it is dilated, let the place for the instrument be made black with writing ink.

Fig. X. The third day after incision, let the blackness made with ink be pared away with paring instruments. Note, that in shaving about the wound, the lips of the wound must be covered with linnen cloaths to defend them; as when you set on the Trepan, Table XXXI. Fig. V.

Fig. XI. shews the small chink, in the middle of the place shaved away, which must yet be taken off with paring tools.

If

TABVLA XXXI

Fig I



If the Chyrurgian be certain that the chink doth not penetrate, he doth not fall to paring again, but he leaves the work to nature; which sometimes is wont to cast off a scale with the chink (*n*) but if there be any suspicion that this chink doth penetrate, he must pare that away, that it may not be seen at all, and the skull may in all places appear equal.

The XXXI Table.

Of the Furniture, and the manner how to cut the wounds of the head triangularly; and to Trepan the skul with Trepan; and to bind the head with a band called Cancer.

Fig. I. is the furniture or instruments necessary to dilate the wounds of the head, and to perforate the broken skul.

Fig. II. shews the dilating of the wound triangularly with a knife. Fig. I. (*a*) for here the coronal suture hinder to cut it crosswaies, and so doth the temporal muscle: the section begins from the forehead, for if it be made otherwise the fibres of the temporal muscle would be cut overthwart. The triangle is sought on the right side of the fissure of the skul, whereby the Trepan, which the coronal suture, on the left side, would not suffer to be set on, may be used: the head is held with mens hands, and is bolstered up with a pillow that it may stand firm.

Fig. III. the wound is seen dilated triangularly, and the skul is uncovered with a narrow chink in it; by which the matter, which descends to the membranes, cannot be voided forth. Wherefore at the side of the chink, noted with a star, the skul must be opened with a Trepan, to let the matter out.

He that goes about to Trepan the skul; must come to the Patient with the instruments printed Fig. I. of this Table; namely, provided with a small piercer; a male Trepan (*b*) and two females (*c d*) Probes (*e f*) a Puller (*h*) and a Lenticular instrument with a Levator (*i*;) then he must prepare those things that are laid in the dish, Fig. IV; and the band Fig. X.

Fig. IV. shews a glass full of Rose-water, wherein the linnen cloaths are moistned, which must be laid to the lips of the wounds: (*b*) is a little piece of red silk, wet in oil of Roses; hanged by a thread (*c*) the little ball (*d*) of dry linnen rags, to cover the
hole

hole that must be made with the Trepan, that the matter of the wound may not descend to the membranes of the brain; (*eee*) shew the little balls that must be applied to the naked skull; for dry things are proper for dry things: also (*ff*) shew the little balls besmeared with a digestive (*g*) to digest the lips of the wound; the simple linament spread upon a linnen cloath (*h*;) and a linnen cloath three or four double (*i*;) the little bone (*k*) is thrust with the iron pin (*l*) out of the female Trepan.

Fig. V. things to be provided being provided; the head being supported, and the lips defended with linnen cloaths, the Chyrurgian shall set on the Trepan with a pin, and marked with a star, Figure III. wherewith he shall begin to Trepan the skul; which he must end with females. Here *Porralius* admonisheth young Chyrurgians, since according to *Hippocrates Aph. 1. Sect. 1. experience is dangerous*, that they should often exercise themselves in Trepanning the skulls of dead men; putting under the skul a piece of white paper, to represent the *dura mater*.

Fig. VI. shews the skull cut out with Trepan, at the side of the chink.

Fig. VII. the brims of the hole are made even with a Lenticular knife.

Fig. VIII. shews a small linnen rag, wet with oil, how it is let down upon the membrane; being fastned with a thread that it may be drawn forth again; when that is drawn out, one that is fresh must constantly supply the place of it.

Fig. IX. is the band called Cancer, which for wounds of the head is the best of all to contain them, and also the most commodious; broad in the middle (*A*) and on both sides having four ends; whereof two begin from the temples, and end in the hinder part of the head, where they must be sewed (*D*;) two arise from the hinder part of the head, and are bound together on the fore part of the head (*B*;) two are turned behind the ears (*C*;) and as many before them (*E*) and are fastned under the chin together.

Fig. X. is the head bound about with the band called Cancer.
 1. The ends *D* are united behind the head. 2. *C* under the chin.
 3. *D* on the fore-part, above the fore-head. 4. *E* under the chin.
 Yet let the head be bound delicately, so that the band may hold fast, but not press it.

The XXXII Table.

Of the way to raise, with Levitors, the skul pressed down; to break off, with Pincers, the small bones that prick the membranes of the brain; cutting forth, with a turning saw, the distances of the holes made with the Trepan; and of the general cure of the head.

FIG. I. are the depressions of the skul; when, by reason of the narrowness of the chink, they cannot be raised with Levitors, Table II. Figure VII. and Table III. Figure II, III. B. and IV; then the skul is Trepaned twice, or as oft as need is, with a Trepan upon the sound side of the chink; and after that the distances of these holes are cut out with a turning saw, that the Levitor, that is requisite, may be put under the skul.

Fig. II. a depression of the skul is raised with the piercer of the Triploides, Table III. **Fig. III. A.**

Fig. III, IV and V. shews the use of the Pincers, wherewith the small bones are partly cut off, and partly broken off, which may prick the membranes of the brain. See underneath the observations of *Martin Kunzius*, and of *Michael Schnerderus*,

Fig VI. the keeper of the membrane is put under the small bone, which must be cut off with the Pincers; lest the membranes that cover the brain, should be hurt by them.

Fig. VII. the skul pressed down, is raised with *Paræus* his Levitor.

Fig. VIII. if it fall out so that the Chyrurgian hath not the aforelaid Pincers ready with him, a small bone is safely laid hold on by this pair of Pincers also, and is cut off; first, putting down under it, the keeper of the membranes, as you see Figure V.

Fig. IX. When I was not yet learned how to use the turning saw, I was wont to cut away, and take out the spaces between two holes with this saw.

Fig. X. When the distance of the holes is cut forth, all kind of Levitors may be let down to lift up the skul; yet that is chosen which is most convenient. To this Table also belongs Figure I. of the following Table; which shews the use of the
Piercer



Piercer wherewith a prick, that doth not penetrate the skul, is taken away.

But that the Figures, of this and of the following Table, may be better understood, which treat of the wounds of the head; I will briefly, in order, recollect the use of them, running over the diseases of dissolved unity in the skul, the membranes and the brain.

Of the most simple wound of the head.

THe wounds of the head with only simple incision of the skin to the *Pericranium*, yet without any detriment to that, and wanting all symptoms, are either united and so kept, either by stitching or some glutinating medicament; or are cured by being filled up with flesh. The latter way of curing seems to be safer than the former, because the skin being cut quite through, it is almost impossible but that the *Pericranium* must be hurt also.

Of a wound of the head, with hurt done to the Pericranium; with alteration of the skul, and the seat of the instrument.

Other wounds with hurt done to the *Pericranium*, or the seat of the instrument, must be cured by ingendring of flesh. They cannot safely be sewed, nor yet glewed together, for three reasons, which *Hier. Fabrit. ab Aquapend. lib. 2. Pentateuch. cap. 16.* alledgeth; nor can these, that manual operations, if they were needfull, may be performed without pain. When therefore, the first hour one is hurt, the Chyrurgian is called, to one wounded only by incision of the *Pericranium*; he shall presently dilate the wound with little balls made of hemp hards, and wet in whites of Eggs beaten together, that so the flux of blood may be stopped, and also the lips of the wound may be kept asunder: also let him anoint the parts, that are next, with astringent oils made hot, to prevent inflammation; and let him apply convenient ligature, that which is called Cancer (Table XXXI. Fig. IX, X.) with a three double linnen cloath, that the parts hurt, be not more hurt by the ambient air, which is an enemy to wounds of the head: or that the medicaments laid on upon the wound may not fall off: Concerning the band note here, that the ends of it D, to be fastned behind the head, must be sewed; because otherwise the knot will do much harm, and make pain with watching.

H

The

The second day after the hurt done, let the Chyrurgian take off the hards, and all other things that are accidental; and the blood being stopt, and the hair shaved away round about, he shall dress the wound with lint made up into little pellets, and anointed with a digestive medicament; applying upon it *Emplastrum Diapalma* with a hole cut in it with a pair of cizers, and spread over with unguent *linimenti simplicis*; with a Plaget of three double linnen cloath, and a roller, not neglecting also the anointings spoken of before; and thus we must proceed till the quitter appear to be good, which is white and not stinking.

When that appears, to cleanse the wound, he must daily mingle some detergent medicament with the digestive, untill it be thoroughly well mundified, continuing the use of the three double cloath, and of the band with unctions. When the wound is cleansed from filth, he must labour to ingender flesh; wherefore he must lay upon the lips of it a sarcotick ointment spread upon dry lint; and not oil of Roses as some ignorant Barbers use to do; upon that he must lay only the *Cerat Diapalma*, then a three double cloath, wet in red wine, or some astringent decoction, and pressed forth again, and next the band about it. These must be used untill such time as flesh is perfectly generated. But if the bare bone be but only altered by the ambient air, (if it lie but open to it for two hours) or if it also grow black; (if it lie longer open to it) then we must scrape off all round about, either till the colour be changed, or till blood comes forth of it. Namely, when the quitter appears to be good, and the wound to be cleansed. If the Chyrurgian observe this time, he shall find that the bone which was but once scraped, and cephatick powders strewed upon it, and dressed with dry lint, will be covered with flesh the next day. For *Iacob Berengarius Carpensis*, is not to be heard, who, *lib. de fractur. cran. cap. 42.* commands that every day we should pare away, with a rasp, what is superficially altered of the bone; because that paring away, performed at the time spoken of, is sufficient; but if it be done before that time, it must be often repeated, and that not without danger of the Patient; for by this reason the paring instrument will, by degrees, come to the Diplois. They that are more fearfull, leave the bone altered to Natures scaling of it, but they prolong the cure.

The wound filled with flesh, must at last be covered with a
cica-

cicatrize, either with dry linaments only, or else by laying on also *ceratum divinum*. By this way of curing, which is both the most safe and most certain, yet universals being premised, and the regiment of things not natural being well observed, I have recovered multitudes of Patients; of which number there is yet alive *Iohan. Petrus Wils* of *Vlma*, who, *Anno 1643.* on the 13. day of *March*, besides some fractures of the skul, received three wounds in the *Pericranium* with clubs; *D. Iohan. Rudolph. Straus* of *Kafenburg*, Steward to the most generous Count of *Walnstein*, whose *Pericranium* I found cut athwart near to the coronal suture. *Anno 1645. August* the 13. day, *Melch. Frick* a Fuller of *Vlma*, was wounded the very same year and day: *Iohn Bucher* a Country man of *Achstet*, who, near to the temporal muscle, *Anno 1642.* on the 13. day of *March*, received a wound on the *Pericranium*: And *Erhardus Vilscher* of *Bamberg*, Steward of the Lord Governour *N. Sals*, who, *Anno 1645.* in *June*, had a wound on his head, was by me at length cured, where he was with the Provost Martial at *Vlma*, *Matthæus Stalzelinus* waiting upon me to assist me.

The feat of the instrument appearing, must be presently pared away with a knife, as soon as the wound is dilated: after that the wound dilated, and the skul pared away with paring tools, must be dressed with convenient medicaments.

A wound of the head with the skul made bare, and a rift as small as a hair not penetrating.

IF that a prudent Chyrurgian be called to cure a short wound of the head, with the skul laid bare, he must presently shave away the hairs of the head, moistned with common oil; and he must most diligently search how the bone doth, either with a Probe or with his sight, or with both together; and if he find a fracture or a chink, or by the antecedent and present symptoms he have a suspicion of a fracture, or else doubt whether there be a fracture or not, he shall immediately dilate the wound, contrary to the common custom of Barbers, with a streight pen knife (Table II. Figure II.) cross waies (Table XXIX. Figure IX) or else after the form of a Triangle (Table XXX. Figure II.) namely where the futures and muscles, especially the temporal muscles, will not suffer us to make a cross; that the bone, being laid naked, may admit the necessary manual operations, by paring tools or Trepanns, safely and without

*Where rasp
only are used
the method*

any hurt to the sensible parts, But yet if paring or trepanning of the skul be needfull, and may be performed without any dilating of the wound by an iron instrument, then we shall totally abstain from section. The wound being artificially dilated, the Chyrurgian shall forthwith part the lips of it, and the *Pericranium* also with it, with the nails of his fore finger and thumb of his right hand, from the substance of the skul, and shall lay dry lint upon the bone, and shall fill up the rest of the wound with balls made of hemp hards, wet in the white of Eggs, and strewed over with astringent powder; not only to stop the blood, but also that the wound may not fall in, and that the next day it may lie wide open with no labour; upon it let him lay *Unimentum simplex*, spread upon a fine linnen cloath (that it may only comprehend the lips of the wound) and above this let him apply the Plaister or Cataplasme of Hippocrates with a decent Ligature; namely, by that which is called the Cancer; and by anointing the parts that are near vvith astringent oils, to prevent inflammation.

The next day, the hards being taken off, the blood being stopped, and the wound being cleansed from all unnatural things, let there be, with a pen, writing ink drawn upon the chink, by the Chyrurgian; and let him dress the skul with dry lint; but the lips of the wound being first anointed with some digestive, he must lay upon that *Unimentum simplex*, and then Hippocrates plaister, and the Ligature called Cancer, together with the aforesaid anointing.

At the third visitation, the wound being bound, and the Patient's ears, according to some mens advice, stopped with wool, and his head being well placed, and underpropt with a bolster, he shall scrape off the chink which hath drunk in the writing ink, or rather printers ink (which *Iulius Caesar Arantius comm. in Hippoc. de vulneribus capitis*, prefers before writing ink, by reason of the vitriol in it, which is biting) with rasping tools, Table XXX. Figure X. according to the length of it, beginning with the larger rasp; and by degrees proceeding to one that is less, and so to one less than that, untill such time as the chink be quite gone, and the bone under it appear white and sound; which is a most certain and demonstrative sign, that the chink pared away did not penetrate the skul. When the Chyrurgian useth this operation, he shall often take away the dust from the rasping instruments; and let him be carefull that he hurt not the skin or the *Pericranium* with them; which may be avoided, if the Patient's head lie firm
whilest

whilest he useth his operation, and the lips of the wound be all covered with small linnen rags, Table XXXI. Figure V. Others do oftentimes wet their rasping tools in oil of Roses, that they may run the easier. But because this anointing is wont to dull the edges of the rasps, I use to change them. When the bone is decently and sufficiently pared, you must lay dry lint upon it (for when the skul is bare and pared, a digestive is not convenient, nor an unguent, nor any fat thing) and to the lips of the wound we must apply a digestive spread upon lint, and upon that *linimentum simplex*, the Cataplasim of *Hippocrates*, and the band called Cancer, with the usual anointing with oils that keep of defluxions.

When the quitter appears good, we must mingle some detergent with the digestive, untill the wound grow perfectly clean; when the wound is cleansed, then we must strew cephatick powders upon the pared bone, and we must apply dry lint to it; but to the lips *unguentum sarcoticum*, with the cerat *Diapalma*, with a treble linnen cloath wet in wine of the decoction of corroboratives, and pressed forth, and with a band, leaving out the oils. The wound being filled with flesh, must be brought to cicatrize by noted Epuloticks. After this manner was *Iohan Rudolphus Straus* of *Kafenburg* dressed and cured; and *Caspar Wirth* a Miller of the Hospital at *Vima*, who both had a rift like a hair, that did not penetrate, near to the coronal future.

A wound of the head, with a fracture of the skul no bigger than a hair, that doth penetrate.

BUT when the Chyrurgian works with these rasps, to try the wound, and he finds a chink which penetrates the second Table, he must not go about to take that away with his rasps (because with them the membranes, which cover the brain, may easily be offended) but laying aside all Chyrurgery, he shall proceed with driers, with which alone oftentimes the Patients are cured; nor is it to be feared, if we timely begin to pare away the skul, but that Nature may resolve the matter (which doubtless descends in a small quantity) to the *dura mater*; for after paring of the skul, the *dura mater* receives in nothing by the chink, which remains in the second Table; because the excrements of the wound, which are apt to run forth, are continually dried up by the dry lint.

Sometimes the bone pared and dressed with driers, will cast off a scale, that the way for the quitter, collected about the membrane, may be open enough for it to come out. I observed this separation in one *George Stuzzel*, who, *Anno 1639.* had a small crack, like to a hair, on the right side of his fore-head, yet it penetrated through both Tables; after that the chink was scraped away as far as the inward Table, and a scale came off of it self; he was most happily cured in the Hospital there.

But if great symptoms do accompany a crack in the second Table, which shew that there is much matter collected between the *dura mater* and the skul; laying aside the Rasps, the skull must be presently bored through with the Trepan. according to the words of *Hippocrates text. 2. de vulneribus capitis.* When you have pared the bone with a rasp, if you find necessity to cut the skul open, you must cut it; and not suffer three daies to pass before you do cut it, but within that time you must do it.

A wound of the head, with an evident yet narrow crack in the skul.

Method
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be used.

When we are certain that the crack goes through, both by reason of the stroke, the quality of the instrument, and the accidents that come upon it; then truly, the Chyrurgian must try, with great diligence, and consider whether the chink be wide enough for the matter to come forth, which ran down through it to the hard membrane of the brain, or not? If it be not broad enough, the Trepan must be set on. Wherefore, the Chyrurgian first of all must foreshew the danger, that the prating of idle people may be prevented. For narrow fractures of the skul, have more danger than those that are broader; for a narrow cleft hinders the matter to come forth: Then he shall presently dilate the wound that is too narrow, either cross waies or with three corners (as the place hurt will admit) with a knife, that he may come at the skul to do his operations there; he shall pull away the lips of the wound and the pannicle of the skull, with his nails, from the bone: which being performed, he shall lay to the bone dry lint; but to the lips of the wound, lint wet with desiccatives, and then proceed with the rest, as in the cures of wounds in the *Pericranium*.

The second or, at most, the third day after the hurt perceived, (where the *dura mater* is pricked by some splint of the bone) the skul

skull must be opened with Trepan, whilst the forces of the Patient yet remain; for after three daies, and so long as inflammation is present or near, the use of the Trepan is dangerous. Neither are they to be hearkned to, who, according to the opinion of *Paulus Lib. 60. Cap. 90.* in Summer expect the seventh day, and in Winter the fourteenth; because Trepanning, at that time, brings help too late; for the forces are then weak, and we may suspect that the pannicles of the brain are already infected by the matter. Wherefore the Chyrurgian, so soon as he is called, shall make hast (only, according to some mens opinion, avoiding the full Moon, because then the brain is augmented, and comes near to the skull; so that the Chyrurgian, who is not acquainted with Trepan called *Abaptistoi*, may easily hurt that with the membranes thereof) with his operation, (especially where the membranes are pricked and pressed) because Impostumes soon follow those things, and ill accidents (as *Guido de Cauliac* admonishes us concerning the wounds of the head) when things to be removed are removed out of the wound; the head being laid unmovable, and the lips of the wound being artificially covered with lint, Table XXXI. Figure V. (*that they may not take cold by the air that comes to them, or be offended by the touch of the instruments*) the skull must be opened with a Trepan near to the chink, Table XXXII. Figure III. in that part that is more declining (unless the suture hinder it, which for certain reasons must be avoided as much as may be) for the more easie coming forth of the matter collected upon the hard membrane. But first we must use the male Trepan, in the middle whereof there is a pin, and this must be duly turned about, untill such time as it hath made such a print upon the skul, *that the female Trepan may stand fast upon it.* Then the male Trepan being taken off, the female Trepan must be fitted to the handle, which must be itrongly and equally turned about (*untill it come to the thin Table*) and it must be changed now and then, *lest it should grow too hot with often turning about.* New Practitioners find fault with dipping the Trepan in oil, which the Antients used, because unctuous things are enemies to the bone, and dull the edge of the instrument. When the Trepan comes to the glassy Table, it must not only be pressed more warily and gently, but it must be taken off, that we may conjecture how much remains of the bone yet to pierce through. Nor must *Glandorpius* be followed, who proceeds in piercing, untill such time as the part cut forth cleaves to the Trepan; but if the bone almost cut forth begins to shake, the Chyrurgian must, with

the smallest and weakest Levitor of all, Table II. Figure VII. (putting that between the bone that shakes, and that which is firm) move it up and down, and pull it forth with the toothed end of the Pullers. ¶ Note, that the operation must not be differed by reason of the blood that runs forth of the Diplois, but must be warily hastned. For the blood, after cerebration, and taking forth of the bone that is fallen down upon the membrane, must be gently wiped away with cotton wrapt about the spindle of the Probe; and the hole made with the Trepan, must be stoppt with dry lint wrapt close together, and that flux must presently be staied. ¶

When the Trepanning is over, and the blood well stopped, the roughness of the hole must be made smooth with a lenticular instrument, Table XXXI. Figure VII. If one hole made with the Trepan seems not to be sufficient, we must make another; as it shall appear afterwards in the History of *Happellius*, *Hebichius*, and *Schneiderus*. These things being rightly performed, we must let down, through the hole, a little silken red rag, upon the hard membrane; or else a white linnen rag, round as a globe, fastned to a thread, (that it may be drawn out again) and dipped in compleat oil of Roses made hot, Table XXXI. Figure IX. that it may turn the matter, which falls down, into quitter; and may defend the membranes, by reason of their motion, from being hurt by the bone. ¶ The linnen rag being put in, we must put into the hole a round pellet of dry lint, that the quitter bred in the wound, may not descend to the membrane of the brain; upon the naked bone we must lay dry lint, the lips of the wound being anointed with some digestive; and upon this we must lay *linimentum simplex* (that it may not stop in the quitter) with a hole in the middle of it; then a cataplasme, and a band, with anointing the parts next to the wound, with repelling oils to hinder inflammation. This way of cure must be exactly observed, untill all fear of inflammation be past; and the Patient must be admonished, that he must daily, when the wound is bound up, promote the coming forth of the matter, that is run to the membranes of the brain, by breathing out at his nose, keeping his mouth shut. ¶

When good quitter appears upon the hard membrane; in the place of oil of Roses, *mel rosatum colatum* must be let down upon the membrane, with a linnen rag tied to a thread; upon the bone must be laied dry lint, and upon the lips lint wet with some deter-

detergent digestive ; to mundifie the hard membrane and the wound also outwardly, we must continue the use of *linimentum simplex*, *Hippoerates* plaister, a band, and astringent oils.

If the wound be clean, and the membrane is seen to be cleansed from filth, *omitting the silk or linnen rag, and honey of Roses*, we must put into the hole, a round pellet of dry lint ; and the naked bone must be strewed with cephatick powder ; also to the bone we must lay dry lint, and to the lips lint anointed with some sarcotick unguent, and above these *ceratum Diapalma*, with a treble linnen cloath, wet in the decoction of red wine, with capital remedies, and pressed forth again, and they must be fastned with convenient Ligature. With these we must proceed, untill the bone be covered with good flesh, and the wound be filled up with it. Last of all a cicatrize must be made with Epuloticks. This way of cure I found to be the best in *George Seiz*, a Country-man of *Idelhusan*, concerning whom see *Gregory Horstius* his Chyrurgical Observation XX. 4

A wound of the head, with a fissure in the skul, that penetrates and gapes wide enough.

If the crack gape, that the matter may freely come forth of it, we need not Trepan the skul, or dilate the wound with an incision knife, which is only appointed for this reason. And therefore *Chalmetius* doth rightly judge that those deserve to be censured and reprehended, who not only in a small fissure of the skul (though it do not penetrate) but also in a great fissure are very bold to set on the Trepan ; by which great error the cure is prolonged very much ; to the great damage of the Patient, and loss of the Chyrurgian's reputation. I am not certain whether these inconveniences ought to be ascribed to the ignorance or covetousness of the Chyrurgian. When therefore a great fissure admits not of the Trepan, what must a cordial and prudent Chyrurgian do in such a case ? Let him follow exactly the cure of a narrow fissure, after the necessary use of the Trepan (*yet omitting the Trepan as needless and hurtfull*) let him let down a long linnen rag upon the hard membrane, answerable to the magnitude of the fissure, and tied to a thread, and wet in oil of *Roses*, &c. *Iohn Anwander*, a Lighter-man of *Kirchdorf*, who is yet

yet living, will commend this way of cure, in whose left side of the forepart of his head (*Anno 1633. in January*) I found a fissure (*it was so broad that I could easily put in my finger next to the greatest finger*) with a huge inflammation of the *dura mater*; which, by premising universals, and by the diligent application of oil of Roses, applied warm with a silken rag. and of Hippocrates Cataplasme, was taken away in three daies.

A wound of the head where the dura mater is hurt also.

Likewise upon a wound of the *dura mater*, with a crack in the skull that is wide enough, we must let down a long silken rag, tied to a thread, and wet with oil of Roses: when good quitter appears, a new linnen rag must be anointed with *mel rosarum*, and must be let down upon the membrane, which being cleansed, the wound of it must be incarnated by *unguentum de betonica*, melted and poured in warm at the hole. *But the bone, and the outward wound, must be dressed as we said before for a fissure of the skull that penetrates, and gapes wide enough.* But when the fissure is narrow, that topicals cannot be applied to the *dura mater* wounded, then the wound must be duly dilated with an incision knife, and the skull must be Trepan'd; and all other things observed, as I speak before for the cure of a narrow chink.

A wound of the head when the pia mater is wounded, and the substance of the brain.

THe *pia mater* can hardly be hurt, and the brain that is under it not be hurt also. *Wherefore we must forbear the use of all untions and hot remedies, by reason whereof the substance of the brain will easily corrupt, as Authors write truly.* Some also reject *mel rosarum*, by reason of its acrimony and heat; and for that they use syrup of Roses. Yet for these kind of wounds, I have used both syrup and honey of Roses often; but never found any hurt come thereby. But before all other remedies, I cannot sufficiently commend that unguent which Hierom. Fabritius ab *Aquapendente* describes lib. 2. of his *Pentateuch. cap. 20.* and he oftentimes applied it with happy

happy success: I also tried the vertue of it in Michael Schneiderus, of whom afterwards there is a singular observation. We must look to the wound and the crack, as I admonished concerning a wound of the dura mater.

A wound of the temporal muscle, with the hurt of the Pericranium and the vessels.

OF all the wounds of the head, those are the most dangerous where the temporal muscles are hurt; for they are covered, on the outside, with the *Pericranium*, which passeth above them and wraps them in; but on the inside of them they are naked, and lie upon the naked bone immediately. Wherefore, we must observe very well, if the *Pericranium* (which wraps in the said muscles, and hath its original from the internal thick membrane of the brain, by the sutures of the skul) be but lightly inflamed; for this will presently cause the thick and thin membranes, and the brain under them to consent with it: Also the wounds of the temporal muscles are dangerous, by reason of the flux of blood from the arteries which are cut, and which the most choice astringent can hardly stop. In the like case I never found any thing better than Galen's plaister (the commendations whereof you shall find in Zacutus Lusitanus, *Prax. Med. admirand. lib. 1. observ. 85.*) made of Aloes, Frankincense, and the flue of a Hare well beaten together, and mingled with the white of an Egg; with this the wound is filled to stop the Arteries: If by this most precious remedy the blood should not be stopped, which boils forth exceedingly by reason of drunkenness or anger, then four grains of *Sperniolum compositum Crollii* are given; with very good success; and about the neck a plaister is applied (whereof Iohnstonus makes mention in his *Idea Medicinæ cap. de hæmorrhagiarum*) made of Potters clay compounded with the most sharp vinegar of Roses, and laid upon a band that is four fingers breadth, and renewed as often as it is dried, untill such time as the flux of blood, commonly within half an hour, or else sooner, doth stop wonderfully. I thought it fit to mention these three remedies by the way, because they are not only wonderfully forcible to stop the flux of blood from the temples, but it doth infallibly stop a desperate bleeding at the nose, or of the gums, which follows

Three remedies
for stopping
Blood.

follows a violent pulling forth of the teeth, as *Iohan. Iacobus Mayer* a Weaver of *Vlma*, and *Gallus Breittinger* a Country man and Huckster at *Dornenstat*, can testifie. The powder taken at the mouth, stops the boiling forth of the blood. The plaister laid upon the wound, joins together the vessels that are cut; and that which is applied to the neck, hinders the blood to run to the head. This wound (as also deeper wounds, yet without any hurt to the skull) when the blood is stopt, by the first intention must not be cured; but contrary to *Vesalius* must be filled with flesh, and after that brought to cicatrize; taking especial care that inflammation come not upon it, which must be kept away, and driven from it, by *Hippocrates* plaister.

A superficial wound of the temporal muscle.

First the blood must be stopped, with hards wet in the whites of Eggs, and strewed over with *Galen's* astringent powder.

The next day, the hards being taken off, the lips of the wound are to be brought to unite together, with linnen rags spread with cerate *Diapalma*, and laid on crosswise, and the parts about must be anointed with oil of Roses, to hinder inflammation. Also upon these plaisters of linnen, that they may not fall off, a Medicament must be put which hath the force to repel humours (as is *linimentum simplex*, or *album coctum*) and then the band called Cancer.

A wound of the temporall muscle, with a narrow chink of the skull.

But when the skull is cracked under the temporal muscle, it is not alwaies convenient to incarnate; but the quantity of the chink must be considered, whether it be broad, narrow, or like a hair? If the rift be like a hair, and the wound be narrow, then it must be dilated with little pellets made with sponge, as need is, if it be possible; but if it be not to be done, the skin must be cut with an incision knife, as far as the skull bone; yet warily that the vessels, nor the fibres of the muscles be cut a cross. If therefore the Chyrurgian must dilate a wound in the temples, where there is a cleft like a hair on the skull, let him presently foresheew inflammation and convulsion of the opposite part (then let him make incision according to

to the streightness of the fibraes (*having first, in vain, tried to make dilatation by a sponge*) lest the aforesaid accidents, if they chance to happen, may be ascribed to the artificial dilatation of the wound. Which Prognostick, especially in Germany, where Chyrurgical operations are not so common as they are in Italy and France, must be diligently observed. Wherefore the wound being dilated, according as the fibraes run, and the musculous flesh parted from the bone, and the rift diligently rasped, the Chyrurgian must proceed with the rest, *as I said before in the cure of a wound with a narrow, and hair like fissure.*

A wound of the temporal muscle, with a crack in the skull that is wide enough.

When the wound of the skull gapes sufficiently under the temporal muscle, that the matter, fallen down upon the *dura mater*, may be sufficiently voided; *then neither must the wound be dilated with an incision knife, nor must the crack be scraped away with rasping tools, nor must the skull be Trepan'd by the side of the crack:* For these operations (for the reasons alledged before, concerning a great fissure) are not to be allowed in a great crack.

A Contusion of the head, with the rending of the skin, and the skull thrust in, with the suspicion of some crack there.

IT is cured with admirable success, with the skins of beasts new killed, especially of a dog or mouse; which being applied whilest they are yet hot, and left on for twenty four hours, do wonderfully dissolve them. If the contusion be not wholly dissolved with one skin, you must lay on another. But because every man cannot flea a dog, I alwaies chose a lamb skin, which may be got almost alwaies, and is as powerfull to digest as any other.

By this one and most expert remedy (for it never deceived me) I cured, besides many boys and young men, a Carpenter's girl four years old, which by reason of a fall from a high place, had a great contusion on the fore-part of her head, which a certain Chyrurgian would have opened with a rasour, unless I, being join'd with him, had dissuaded him from opening it, out of *Hippocrates sect. 1:*

aph. 7.

aph. 7. wherein he plainly teacheth, that no affection requires Chyrurgery, unless medicaments were first, in vain, applied to it. When therefore there were no symptoms present to cause incision, nor any topical remedy was yet applied in vain, he neglecting manual operation, laied on a lambs skin, and had the wonderfull trial of it (not only on this girl, but afterwards often on people of years) and he oftentimes gave me great thanks for my advice and assistance. *Wherefore I exhort young Chyrurgians, that they shall never open contusions or other tumours, unless they find them to refuse help by topicals.*

A simple depression of the skul in boys, where the skin is whole above.

Sometimes the skul is pressed down, only by reason of contusions, and the skin is whole above, nor is there any fissure in the skul; sometimes there is a fissure alone, and sometimes a depression with a fissure. A depression without a fracture, happens only to children; but oftentimes, in those of years, there falls out a fissure and a depression together.

The skull pressed down in children without a fracture, and where the covers are not hurt, so that those that touch or look upon it, can perceive a small pit (and which no ill symptoms follow) *Paræus lib. 9. cap. 3.* a cupping glass that is ordinary, will excellently well reduce into the proper place. Our most ingenious *Hildanus*, for that purpose, invented two helps; namely, a horn cup, and a plaister; and if these cannot prevail, he thinks we must proceed to cutting of the skin, and raising of the bone, by the piercer, upon his *Triploides*, *Cent. 2. Observ. 5.* Yet these two operations seem to be neither necessary nor fruitfull. *They are not necessary;* for such depressions in children, that press upon the brain and the ventricles of it, that the animal spirits cannot be made; and being made, cannot be distributed into the whole body; are incurable. *They are not profitable;* because first, according to *Hippocrates*, simple wounds of the head, and where the skin is only cut, make work for the Chyrurgian, and bring danger to the Patients; and without doubt that work and danger will be increased, when besides the skin, the *Pericranium* also, and the bone are cut of set purpose: And secondly, when the Levitor is fastned upon the center of the depression, *the pit in the skul is easily made greater.* And thirdly, when

when the screw must be fastned upon the skul, which is yet tender and soft as far as the Diplois, with force; truly it is to be feared (because the Levitor of the screw of the Triploides, is not the same with Abaptiston) lest it should pass through the innermost Table of the skull, and with the point hurt the thick membrane: And fourthly, because the tender bone is exposed to the air, whence it grows black, which is a sign of corruption; which corruption, if it be left to nature to make separation of it, oftentimes creeps to the inward parts, so that it will require a dangerous scraping of it off with rasps, or cutting out with Trepan; but manual operation being neglected, the cure of the wound, *with danger to the Patient*, is prolonged. Yet they that resolve, with rasping tools, to scrape away the skul bone superficially corrupted, must expect that the pit shall grow greater. *Wherefore a prudent Chyrurgian must rather omit all manual operation, when he cannot do any good thereby, than to lay an infamy on the rational administration on the Art of Chyrurgery.*

I being convinced with these reasons, where childrens skulls are pressed down without any rift, or cruel accidents, use to abstain from all manual operation; and being confirmed by frequent experience, I cause the hair to be shaved off about the depression. and I apply a hot lamb skin, with convenient ligature of the band called Cancer, anointing the parts about it, especially the temples and the neck, with astringent oils, to hinder the flux of humours to it, and to prevent inflammation. If at the first application the skin do not consume the tumour, I lay on one more, leaving that on again a natural day. When the tumour is discussed, *if the pit is found, by touching, to be small*, and there are no great symptoms present, which may portend any hurt of the parts under the skul, I put under the lamb skin, the *ceratum diapalmæ* of Galen, spread upon a broad linnen cloath, to corroborate the part affected. That this way of cure is the safest, those Chyrurgians will bear me witness, who have been often my assistants in the like cases; and amongst the chief at *Vlma*, are the most experienced before others, *George Redlin*, and *Nicolas Reutte*, whom I thought to nominate for to testify the same. Also young Chyrurgians shall find how, with medicaments safely, and no great pains, they may cure great blows upon the skull, in *Iulius Casar Arantius*, at the end of his most learned Commentary upon *Hippocrates* his book *De vulneribus capitis, &c.*

A Contusion of the head with a depression, but without any fissure in the skul, where the skin is whole in people of years.

IN people of years pits are most seldom found, under the whole skin, upon the skul, (namely, in those only who have a very soft skull by nature) but yet never without a fissure; for if, after incision made upon the skin, there appears no chink upon the outward Table of the skul, it is to be feared that the inward Table is crackt; whereby the matter can fall down upon the brain, but cannot come forth again the same way. Anno 1632. I observed such a fracture, at *Vlma*, in a Souldier of *Sweden*, who by reason of a depression of his skul, died the second day after. I, being desirous to know what was the cause of his so sudden death, did with a saw divide his skull; and I found the inward Table not only crackt, but also a little splint of a bone (which doubtless did continually prick the membranes of the brain) that was come from it, and yet the outward Table of the skull was whole. Wherefore, as often as in the heads of men grown up, such a pit is seen, it is a most certain thing that the skull is cleft; for unless the skull were cleft, saith *Hippocrates*, the middle could not sink down. Yet supposing, and not granting that there may be a depression of a skull more dry, and without a cleft, that must not be left only to Nature's work (as *Felix Wurts* commands) but the skin must presently be cut with an incision knife, either cross waies, or else triangularly; the *Pericranium* must be parted from the skull, and the gaping wound must be kept with pellets open; not only that the Chirurgicalian may be more certain whether the skull be cleft; but also that if there be a chink with the depression (which is very much to be feared) a Levitor, that is a convenient instrument, may be made use of.

The next day after the incision of the skin, as far as the skull (if no chink can be seen in the outward Table, nor by no end of the Probe with a knot can be found out, nor that we suspect any fracture in the inward Table of the skull, by reason of symptoms, this being whole) we must take the triangular part of the Trefine, noted with a star (Table III. Figure I.) wherewith we must gently bore the skull in the center of the depression, yet not beyond the outward Table. Having made a hole with the Trefine, the Piercer of the *Triploides* must be fastned on, and must be so long turned about by means of

of the screw above, untill it take a little hold of the inward Table; then the skull, pressed down, must be raised up perpendicularly, by turning the lower screw of the Triploides back again. The skull being raised that was pressed down, the instrument called Triploides must be removed; and the wound must be dressed as I shewed before, concerning wounds of the head with the skull laid bare, and for the seat of the instrument.

A Contusion of the head in elder people, with a depression of the skull, and a fracture of the inward Table, without any wound of the skin, or rift in the outward Table.

When the skin of the head is artificially cut, and the outward Table appears whole, yet ill symptoms accompany the depression, it is not to be doubted but that the inward Table hath some hurt: Wherefore the skull must not be raised in the middle of the depression, with a Piercer at the end of the Triploides; but must be opened with a Trepan on the side of the depression, that the matter which is fallen down, by the secret fissure of the inward Table, upon the membranes of the brain, may find a place to come forth; and the skull that is fallen inwards may be raised up with the necessary help of the Levitor.

In contusions of the head with a pit, in a man of years, the skin that is whole must be cut with a cross, or else a triangle, or the wound there that is not broad enough for a Trepan, or a Levitor to be applied, must be dilated with an incision knife. But in contusions without a pit, we must attempt nothing, nor by Trepan, nor by Levitors, but only a Lamb skin must be laid upon the contusion, unless symptoms follow which shew the skull to be broken, and that there is need to use the Rasps or Trepan.

The depression of the skull, with a broad rift in the middle of the depression.

If there be a chink apparently join'd with the depression of the skull (which unless it be wide enough, requires the *Pericranium* to be pulled off from the skull) that is either in the middle of the depression, or else it is on one side of it; that which is in the middle of the depression, is either broad or narrow; if the crack
I be

be broad, and the depression not great, the skull must be raised with a Levitor. Table II. Figure VII. when the crack is broad, and the depression is apparently greater than ordinary, the stronger Levitor must be let down, Table III. Figure II. but if with a broad crack the skull is far gone in, then the said Levitors are to little purpose; wherefore the Levitor of the Triploides, Table III. Figure III. must be used.

The depression of the skull, with a narrow crack in the middle of the depression.

AT the bounds of the depression, the skull must be cut forth with Trepan; then the distance between two holes must be taken away with my turning saw, Table V. (which is done without any fear of danger) not only that some of the said Levitors may be put under the skull; but also that the small bones, which sometimes are parted from the inward Table of the skull, and prick the thick or thin membrane like thorns, may be taken forth with the puller.

The depression of the skull, with a crack, which is broad or narrow at the side of the depression.

THe crack in the middle of the depression, is either broad or narrow; if it be broad, then a convenient Levitor must be put under the skull; if it be narrow, the skull must be evenly terebrated, on that side of the crack that is found and bare, with a Trepan, and must be lifted up by help of Levitors: if the Levitor let down at one hole cannot raise the skull, we must make another hole, and then cut forth the distance, between these holes, with a turning saw, that in what part soever of the fissure it be needfull, the Levitor may be put down, and the skull raised by it.

A wound of the head, with a smooth chopping away a piece of the skull.

THis requires no manual operation, but it must be covered with flesh as a skull newly raspt with rasps: See underneath the observations of *Alphen. Schadeus*, a Senator of *Vlma*.

A Contra Fissure.

THat which *Hippocrates* calls a Calamity, when it is found it is cured as the contusion of the skull with a fracture, under the whole skin; namely, by making incision in the skin with a knife, and separating the *Pericranium* from the bone, and (if the crack that penetrates be narrow) we must perforate the skull with Trepan, &c.

A prick of the skull not penetrating, and one penetrating.

A Prick on the skull that doth not penetrate, must be taken off with Piercers, Table XXIII. Figure I. but when it penetrates through both Tables, the skull must be opened with Trepan, setting upon the point the pin of the male Trepan, untill it make a print, upon which the female may stand fast: Now that these two operations may be performed quickly, safely and pleasantly, the *Pericranium* must be separated from the bone.

This way of curing wounds and fractures of the head, far excels that which *Fælix Wurts*, lib. de cerat. varior. vulnerum, cap. 7, 8 & 9. so much commends, and our Barbers in Germany every where follow, as if he were *Apollo's* Oracle; yet oftentimes with great danger to the life of the Patients. And I wonder not that the cure doth oftentimes not answer expectation, when as the place of *Wurtzius* that is quoted contains many errors; which young Chirurgians may observe, if they will take a little pains to compare the short way of *Hippocrates*, with that of *Wurts*.

The XXXIII Table.

Of the paring off a prick of the skull; the cutting of the temporal muscles; the cure of ancytolepharon; of a perfect Suffusion, and an Ægylops; of the way to fix the eye.

FIG. I. shews how a prick on the skull, that doth not penetrate is taken away with a Piercer, Table III: Figure I, after that the skin is cut, and the skull is laid bare.

I 2

Fig. II.

TABVLA XXXIII



Fig. II. The finger, when the hair is shaved away, searcheth the place where the temporal muscles are cut, which is done between the crown, the temporal muscle, and the muscle of the fore-head; it proves also whether the vessel under it be a vein or an artery. If the lower jaw being moved, you feel with your finger the motion of the temporal muscles, you must seek for a vein or artery in a higher place; the vessel is an artery, if you feel pulsation; but a vein, if you feel none.

Ancycloblepharon is cured with one hand: Now the ey-lids either grow together, or else they grow to the white or *cornea* or to both coats of the eye. The growing of the ey-lids together, is cured by the use of a crooked knife (Table VIII. Figure VIII. to whose point there is fastned a very small and sharp button of silver) which is thrust in at the inward corner, where they never almost grow together, between the eye and the ey-lids (so that you may place the blunt side toward the eye, and the side that cuts to the place where the ey lids join) till you come to the outward angle; then you must prove with your finger the place which must be cut, before you do cut it; and this being found out, you must cut the place where the ey-lids join together. When you have made incision, you must put a liniment between both ey-lids, that they may not grow together again.

Where the ey-lids stick fast to the coats of the eyes, the edge of the knife (which is nothing else then the broader part of the Probe Table VIII. Figure VI.) with great moderation must be thrust in between the ey-lid and the coat of the eye, whereby those things that stick together may be separated, without doing any hurt, if possibly it may be so, to either part. But if it be necessary to hurt any one part, let rather the *adnata* of the ey lid than the eye, be cut. But when the eye is freed from the eye lids, a clean linnen cloath must be put between them, that they may not be glewed together again.

Fig. III. represents a suffusion in the right eye, that, Fig. IV. must be put down with a needle; and moreover, a little swelling with a coat risen between the nose, and the greater cauton of the left eye, and is broken inwardly (which men call an *Ægylops*) and it cannot be cured by medicaments; wherefore the swelling is laid hold on by the teeth of the Puller, and it is cut at the bottom with a knife (Table II. Figure I.) yet so that something of the spongie substance must be left behind; otherwise there would follow a perpetual running forth of tears by the cheeks.

Fig. IV. shews how before we couch a cataract that is ripe, the sound eye must be shut close with cotton, and a ligature; also it shews the place where the needle is put in (Table VIII. Figure IV.) which *Albucasis* describes *lib. 2. cap. 23.* in these following words; put the end of the needle near to the coat called *cornea*, by the thickness of the *radius* (or blunt Probe) into the very white of the eye, which respects the lesser or outward angle.

Of a suffusion.

A Cataract that is perfect, ripe and compleat, which is grown into a small skin, as they call it; the last remedy for this is to part it from the circumference of the apple of the eye near which it grows, thrusting in a needle through the *cornea*; and if this succeed well, the same moment that the skin is taken away the sight is restored. But the Oculist must consider, before he begins his operation, whether but one or both eyes are affected with it: and if, both eyes being covered, the Patients are seemingly quite blind, the operation will be easier; for we can fear no worse though the operation should not succeed well. But when but one eye is hurt, and the sound eye will serve to see withall, we must not so rashly go about it; especially if the small skin, or web, be not well ripe, which sometimes it will hardly be in three, four, five or more years. Nor yet must the matter that makes this web be any waies made thicker, as *Iohan. Baptista Silvaticus*, *controvers. 56.* most elegantly decides this question. And though most Authours require a little thickning of the humour, yet it is apparent by experience, that the Cataract will be more easily couched, when it is grown ripe perfectly. For that which is not ripe, is yet soft and snotty, and resists not the point of the needle; nor can it be taken away whole, but is cut and grows again, or else it grows harder, or mingled with a watry humour; that not only the sick can see nothing, but also all hope of cure by a second operation (for if it be twice couched it is but in vain) is taken from them; which also useth to fall out, if the crystalline or vitreous humour, or their coats, be hurt by the point of the instrument; or but only the *uvea*, about the apple of the eye, be torn. By these things it is evident, that this kind of remedy is very doubtfull and uncertain; and by reason of the great difficulty

culty of it, an error that cannot be mended may easily be committed: wherefore health must never be rashly promised to the Patient, as Mountebanks use to do (*who are never ashamed though they do not perform their promises so they can get by it*) but we must promise to do our best. I, to speak the truth, never tried this manual operation, though I had the instruments ready by me; but I saw it twice performed by an Italian with good success, upon one eye of a certain Nobleman of *Padua*, and of a Monk of *Verona*. But the Artist, who was of *Padua*, ordered his manual operation thus: The Patient's body being prepared, and God called upon for his assistance, he chose a private chamber, where the light was moderate; and upon a clear and quiet day, three hours before dinner, he placed the Patient, yet fasting, on a seat near the bed. (at his back there was a bolster or pillow) so that he might look toward the light; on the seat that was opposite the Chyrurgian sat, in a chair with his legs open, and the Patient sitting between his legs, and both his hands leaning on both sides upon his thighs; at the back of the Patient an Assistant (holding the Patient's head firm and upright with both his hands) covered his right eye, which was sound, with cotton and a band (see this Table Figure IV.) This being done, the Assistant laid some cushions between the Chyrurgian and the Patient, that the Artist's arm might stand steady. See in *Fabritius Hildanus Cent. IV. Observ. XVI.* an instrument whereon the Chyrurgian's arm leans, as upon a block or pillar. This being likewise done, the Chyrurgian with his right thumb rubbed the eye that was ill, shutting his eye lids, and then presently opening them again; and first chewing Fennel seed in his mouth, he did warm the eye with the vapour of it; then he took a golden needle (because the Cataract to be couched was white, but a silver needle is requisite, when the congealed humour is black, or of any other colour) which was long and the handle of it was chamfered and wound about, that he might hold it the faster; and it was most sharp at the point, and was made less by degrees, Table IX. Figure IV: Wherefore he thrust this in with his left hand, near to the place of the eye, leaning upon the outside of the eye, in the white that is not far distant from the *Iris*, somewhat above the middle of it; and this he did not do violently, but winding it about by little and little, untill he penetrated the coat called *cornea*; which

the Patient easily indured, with very little sense of pain: The needle thus thrust in, he by and by directed it toward the hole of the *pupilla*, where the Web grew; and by degrees he brought it to the innermost place of the skin; which was done the more conveniently, because the golden needle might be seen through the *cornea*. With this needle thrust thither gently, and that he might remove the Web from the circumference of the hole, having turned it up and down sometimes (for it doth not alwaies succeed the first time) he pressed it down; and when the skin was freed in one part, he did at last separate it with his needle, wheresoever it did yet stick; and he thrust it downwards into the lowest and obscure part of the eye. When the skin was come below the region of the *pupilla*, the Chyrurgian shut the eye, and left the needle within it for a quarter of an hour, that the Web might stay in the lower part, into which it was forced, which is known if the skin do not mount up again when the eye is moved. *In the mean while heed must be taken that in couching a Cataract we do not cut it into many parts; for those pieces though they be pressed down, yet will they be easily brought up again to the seat of the eye, and floating there will hinder the sight.* All these things being rightly performed, the couching of the Cataract succeeded well also; the black eye sight began to appear, and the Patient began to see. At length thrusting down the eye-lid, and shutting the eye, he drew out the needle again gently, lest the matter which made the Cataract, should rise up again to its former place, or the vitreous or crystalline humour should be hurt. Nor is there any fear of the watry humour running forth, because the hole made in this thick coat falls down again immediately so soon as the needle is taken out.

The operation being thus ended, and the eye being well and sound, yet upon both eyes, kept shut for six daies, he did daily three or four times lay on cotton which was wet on one side with Rose-water and Fennel-water, to which he added a little Saffran and Fennel-seed in powder, for greater corroboration. But to prevent inflammation, he applied to the fore-head a linnen cloath moistned with the white of an Egg beaten, on which were strewed *Galen's* astringent powders; and above the cotton and the defensative, now mentioned, he bound another linnen cloath with a band. From that time
the

the regiment of the Patient's diet was not large; but he was allotted a very spare diet. And that the sight, not yet used to much light, should be overcome by it, he commanded that the Patient should stay for a time in the dark, shutting the wooden windows all about, and should by degrees use himself to the light. And also that the spirits might not be carried to the eye with any force, he did forbid all vehement motion, as coughing, sneezing; crying loud, and great straining when the Patient went to stool, or to make water. He lay on his back when he did eat or drink, neither did he rise to go to stool, but he had a Close-stool of wood set under him. And thus the Patient having regain'd his former sight, by a diligent use of Prophylacticks, and by an issue burned in his Arm, he lived safe and well many years. Also a notable Oculist *N. Mariannus*, by birth a Roman, couched a Suffusion, very fortunately, in both eyes, according to *Celsus*, when I flood by in *Vlma*, 1637. in the moneth of December, for *Mr. Tobias Neubronnerus*, and *Mistis Kazenbackin*. And these things shall suffice concerning a Cataract happily couched, which I have therefore brought out from my Shop of Observations, that such as are studious in Physick, if Mountebanks, who are most commonly trusted to cure these Patients, shall in their presence not proceed as they ought, they might be able to correct them. And since that the manual operation for a Cataract is the most curious of all, *Celsus Lib. 7. Cap. 7. De natura Oculorum & eorum Suffusione*, hath most clearly set it down, to whom I refer the Reader; and he that desireth more, let him read *Platerius*, or *George Bartisch* the Oculist at *Dreson*. For the discussing of Cataracts first beginning, many descriptions of *Collyrium's* are found in Authours, to which they attribute most singular effects. I have tried that the gall of a Pike, with a little Sugar mingled together, after I had purged my whole body, and had laied on a Vesicatory behind my ears, being dropped into my left eye by my Brother's Son, it resolved in one weeks space a Cataract that was then beginning: *Adrianus Spigelius* often used this remedy successfully, who beside this did very much commend unto me the oil of the Liver of a River Weesel (concerning which see *Forestus Lib. II. Observat. 35.*) and the eye-water of *Martin Rulandus*,
and

and that other which is like to it, as being very good, and much used at Naples. This was described by *Iohn English* in his practice, which he calls the *English Rose*, and *Sennertus* makes mention of it, *Pr. L. 1. p. 1. sect. 2.* yet leaving out the description, which is this: Take Fennel, Rue, Eybright, Vervain, Tormentil, Betony, Roses, wild Endive, Maidenhair, Chickweed, Pimpernel, Swallow wort, Paper, Piony, Vine leaves, Smallage, Agrimonie, Honey-suckles, of each alike, bruise them; and the next day, put them thus bruised in white Wine; the second day in a Boies water who never knew Woman; the third day in Womans milk; and the fourth day in the purest honey; at this time you must distill them, and keep it for your use. I never used these two waters, yet besides my purpose I would propound them to studious young men, that they might trie the effects of them, which were so much commended to me by a most famous Physitian, when they shall have occasion.

Fig. V. shews the hole in the greater cauton of the eie, with a coat of the Impostume; upon this hole is a pipe set (*a* Table I. Figure I.) that it may defend the eie; and by pressing the skin near to it, may dull the feeling, whilest the naked or rotten bone is burnt with a red hot iron, made like an Olive (*b* Table XIX. Figure VI.) thrust into the pipe; then lay fine lint on the bone cauterized, untill the scale part from the bone; then the hollow Fistula must be join'd together, with a sponge wet in Allum Wine, and pressed forth, and kept down with an instrument with a broad head; when it is glewed together, the wound must be kept drest with Sarcoticks and Epuloticks.

Fig. VI. shews the right eie fastned with a ring (*c* Table VIII. Figure V.) and a Polypus hanging down from the right nostril, and the cutting of a tumour with a coat under the skin, risen in the upper jaw: whose coat being unawares broken with a Diamond (*d*) the matter being evacuated, I separated it, as far as the root went, with a broad Probe, from the skin and the muscles under it; which I cut out with a sharp knife (Table XII. Figure II.) and I touched the small bone very well with an actual cauterie (Table XIX. Figure VII.) this being done I brought the wound together, with plaisters spread upon linnen.

Fig VII. represents a glafs vessel (*e* Table VIII. Figure X.) bound to the eie, by the tunnel whereof collyrinous are dropt into the eie by drops; then it shews the way to draw out a Polypus out of the nostrils, by an instrument invented by *Hierom. Fabricius ab Aquapendente*; also the Polypus laid hold of by the Pincers, and placed

placed beyond them. *Matthæus Glandorpius* hath written a most elegant Tract of the nature and cure of a Polypus, which those that will cure it shall read with exceeding great profit.

Fig. VIII. shews how the cutting of a tumour with a coat, which grew amongst the muscles of the upper lip, as great as a Hen egg, did absolutelie deform a most honest and most beautifull Matron, not without great pain, her lips, for the cutting forth of the tumour, were drawn one from the other with hooks: See underneath a singular Historie.

Fig. IX. shews an excrescence of flesh like a sponge in the fore-part of the Palate, risen behind the cutting teeth; it was greater than a Walnut, and as often as it was touched with the finger or tongue, but easilie, it would send forth a great quantitie of blood: Of which accident see underneath an especial observation.

The XXXIV Table.

Of the cutting forth of the Uvula corrupted; perforation of the sharp Artery; cauterizing the hinder part of the Head; and of the manner of making a seton, with a red hot needle, in the nape of the neck, and tip of the ear.

FIG. I. shews half the Uvula sphacelated, which, before the corruption spread, and infect the whole Uvula and the parts about it, is to be cut off with a thread put to it, and bound about it with a ring (a Table IX. Figure VII.)

Fig. II. The ring being prepared (a Table IX. Figure VII.) the Assistant must put down the tongue with a *speculum oris* (Table XI. Figure IV.) (Table XXXVI. Figure VII.) But the Chirurgical must lay hold, with the ring, on that part of the Uvula which is corrupted, and he shall draw stronglie the thread that is marked (b) either with the left hand or with the right, and so he shall most closelie bind the Uvula; when he hath made a knot by the Uvula, he must cut off the thread (c) with his cizers, and drawing out the instrument, he shall leave both the ends hanging cut of the mouth, untill the Uvula falls off the second or third day.

If the Uvula grow flaggie by reason of much phlegm running into it, the powder of raw Allum mixt with white Pepper, is used with excellent success, blown up to it. The way to blow in such powder

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powder, is this: The tongue being thrust down with *speculum oris* (which the Chirurgicalian shall hold in his left hand) he shall presently with his right hand, set the spoon (*d*) filled with this powder to the Uvula; then shall he take the other end of the pipe (*e*) in his mouth, and blowing shall scatter all the powder in the spoon about the mouth and Uvula, See *Gailhel. Fabrit. Hildan. Cent. 2. Observ. 2*, of the cure of the Uvula relaxed.

Fig. III. The sharp Arterie, in affections of the Larinx which are readie to choke us, is most safelie perforated by a Chirurgicalian who is not ignorant of Anatomie, the way following: The Patient's head being inclined backwards, not only that the sharp Arterie may be seen plainlie; but also that it may be made longer, and the membranous distinctions in it may appear more exactly, a line must be drawn with ink, by the middle and forepart of the length of the neck, almost as far as the hollow part of the throat. Then, with the finger, we must touch the head of the sharp Arterie; next we must exactlie, with the finger, search out the end of the Larinx on the forepart; this being found out, we must descend untill such time as three or four rings of the sharp Arterie be past over (three in those that have but short necks, and four in those that have long necks; which bounds we know either by sense or by reason; by sense, in a lean neck; but by reason, imagining and conjecturing at the largeness of three rings; in which case we must view the sharp Arterie of one that is well) that there incision may be made; yet not immediatelie under the Larinx, lest inflammation, which easilie follows after incision, should be communicated to the Larinx, that was before shut too much. The membranous place being thus found out, the middle circle, between two grisly circles, must be marked with ink, according to the length of the neck: Afterwards the skin, with the fleshie membrane under it, here and there, being laied hold on with the fingers of the Assistant, nawely, with the thumb and fore-finger of both hands, by the length of the line made from the Larinx to the throat (*for so there is no danger that any vessels, nerve or muscle should be hurt*) it must be cut with a crooked knife (*f*) so that the overthwart line be in the middle of the incision; and the incision must be made so long, that being dilated it may contain the thumbs breadth, and may admit the use of the double edged knife (*g*.)

Fig. IV. Incision being made, the lips of the wound must be drawn open with the fingers, and the blood must be wiped away with the sponge (*i*) that the two muscles which lie immediately upon

upon the sharp Artery, and are called *Sternohyoidæi*, may appear. Then the muscles which are distinguished by a certain white line, are to be drawn asunder, at length, with the haft of the knife (*b*) that the body of the sharp Artery may come to be seen.

Fig. V. When the Artery appears, the distance must be kept open with a blunt hook here and there, untill incision be made overthwart, between one and the other cartilage by the edge of the divided spatha (*g*) But the knife must be thrust in so deep, that it may reach the hollow of the sharp Artery; and this is the sign that it is gone in so far, if the breath come forth of the wound with a murmuring noise. Then a pipe of silver (*k*) with holes in it, and crooked, that is exactly as big as the wound made in the Artery, that is short that it may not touch the insides of the Artery, with shoulders that it may not be sucked in with the breath, and tied with two threads that it may be drawn forth and fastned, must be put into the wound made in the Artery; and there it must be left so long as all fear of inflammation is past. Then the pipe must be drawn forth, and renewing, if need be, the wound of the skin and fleshy membrane by scarification, the lips must be drawn together and stitched; and being so brought together, they must be kept so with plaisters spread upon linnen cloath, and with convenient ligature,

Fig. VI. represents a seton burnt into the tip of the left ear, to intercept the matter that ran thence continually, by a vein pricked through with a needle and burnt, to nourish and augment the tumour, which hanging by a thicker basis from the neck, by reason of the angular veins, and the inward branch of the carotick Artery, can neither be cut off, nor yet separated from the skin. The Eschar being taken away with butter, I put first into the seton a ring of lead, untill that was perfectly healed; after that I put in a gold ring with a rich pearl in it, instead of the leaden ring, such a one as your Arabian women hold a great grace to wear in the laps of both their ears: With this putting in of rings, not only the increase of the tumour was hindred, but also by accident it grew so small, that the noble Patient, wearing a stomacher, could easily hide it. See Table XXXV. Figure II. of cutting forth and amputating a tumour contain'd in a cover.

Fig. VII. shews the cauterizing of the hinder part of the head, of people in years, with a red hot iron that is round, where there is danger of an Apoplex and other sleepy diseases. But the hollow of the hinder part of the head useth to be cauterized with a red hot iron,

iron, especially in children new born, and those that suck the breasts who are frequently troubled with the Falling-sickness, by reason of a cold and moist temper of their brain. For the cure and preservation from this disease, Physick hath found out a present remedy; namely, to burn the hinder part of the neck; which is as it is a most safe way, so it doth most commonly make revulsion, derivation and evacuation of the phlegmatick humours, with apparent good which burthen the head. Hence it is that cauterizing the nape of the neck is so common in some places; that at Florence none or very few children are found, that are not so cauterized presently after they are baptized. The hair therefore being shaved off, we must make an iron instrument red hot, which is the oval and long fashioned (Table VII.) fit for the hollow of the hinder part of the head, between the first and second vertebra of the neck; wherewith, when the danger is small in tender age, and when the paroxysm is off, it must be touched only once lightly; but when the danger is greater in riper age, in the paroxysm, and when for many daies the place must be kept open, the iron instrument must be thrust on deeper twice or thrice. Afterwards we must apply to the place cauterized, either butter with *Diapalma*, or else *Triapharmacum*, that the Eschar may fall off; which being taken away, the ulcer must be kept open so long as need requireth, and must be let run with *ceratum sacrum* or *Diachylon*. Last of all let it be brought to cicatrize with *ceratum de Cerussa*, or some other healing medicament. A Seton in the same place made with three instruments; namely, with the Cizers, a red hot Needle, and a Seton, voids forth the humours that fill the head, by putting them back from the eys to the neck; it makes derivation of those that fall down to the jaws and throat; and it intercepts those which fall on the *spina dorsi*, and the joints of the limbs. *But since there is so great benefit of a seton, I thought good, for the help of Students, to set down the reason and manner how to make it, both in words and figures.*

The Patient must sit on a low seat, and the Physitian with his forefinger must search out the place fit for a leton, or that cavity which is between the first and second vertebra of the neck. When he hath found this, the hair must be presently shaved off, and the place to be bored through must be marked long waies with writing ink, so that the line may be in the middle of the hollow:

hollow; but that the said middle place may not be missed, the Patient must hold his neck streight to the Chyrurgian; then the Chyrurgian shall also mark both the holes, that must be made both on the right side and on the left, with writing ink, that the distance between both marks may be one finger and a half broad, more or less as the Patient's skin is thick or thin.

Fig. VIII. The place being marked, and the ink dried, the Patient must so lean back with his head, that the skin and fleshy pannicle may be relaxed; then the Chyrurgian shall first with his fingers draw away the skin and fleshy membrane, from the muscles that are under them, and of the said covers, as much as may be done (yet leaving the muscles of the neck untouched, for fear of convulsion and other ill accidents which may happen) with a pair of Pincers (*l* or *m* Table VIII. Figure I, II, III.) that are fit for it, he shall lay hold of them, draw them to him and bind them fast, as hard as the Patient can well indure it, or rather untill it causeth pain; that so the nerves being bound, the part to be bored through may grow fenceless almost, and the Patient may less feel the burning instrument, which otherwise is painfull enough: But he shall so lay hold of the skin and membrane with his Pincers, that the line drawn before on the length of the cavity, and the marks of the holes, to be made on both sides, may be seen through the holes of the Pincers exactly. Then he shall thrust in the needle (*n* Table VII. Figure IV.) very well made red hot, that it may pass through both holes of the Pincers in an instant, and shall suddenly draw it forth again.

Fig. IX. After this, the Pincers remaining unmoved, he shall pass a pointed instrument through it, which at one end hath a waxen little pellet, and at the other end a silken thread fastned to it (Table VII. Figure V.) and he shall draw this thread, wet in the white of an Egg, as far as the middle of it smeared with butter, and there shall he leave it.

Fig. X. These things being done, he shall bring both ends of the silk to the foreparts of the neck, and to the breast; and he shall bind the part with a four double linnen cloath wet in Rose-water and the white of an Egg, to hinder inflammation, and then wrung out again, and with convenient ligature. The daies that follow, commonly untill the sixth day, before he doth draw the silk by degrees, sometimes to the right hand, and sometimes to the left, he must anoint that part of the silk which must be drawn under the skin, with some digestive; and on the outside he shall lay

lay a four double cloath pressed out with the same medicament² untill such time as the ulcer breeds good quitter, and the fear of inflammation is over. Then the silk must be drawn under the skin, with this or the like unguent first being anointed:

Take Venice Turpentine washed in Mallows water one ounce,

Syrup of Roses half an ounce,

Powder of Turbeth and Rheubarb, of each a scruple and a half; mingle them for an unguent.

And lay upon it the plaister for issues, (described Table the last. letter l) so long as you are minded to keep the ulcer open. Last of all let him draw forth the silk by little and little, and glue the skin fast to the muscles under it, laying upon it *ceratum divinum*, a four double bolster, and a pressing ligature.

The XXXV Table.

Of the cutting of a seton, and the pulling forth of hairs that prick the eyes; cutting out of tumours with coats, curing the upper eye lid, namely when it is either relaxed or contracted: of the cure of Staphyloma and Pterygium; of the bringing together of the lips of wounds in the cheek, by means of Plagets that are emplastick; and of the curing Hare-lips.

FIG. I. is the way to make a seton with a pair of pincers (Table VII. Figure X.) and with a pen-knife (Table XVIII. Fig. VI.) pictured; which *Guillielmus Fabricius Hildanus cent. 1. observ. 40.* describeth, and prefers it before the former way of making it with a red hot iron, because the fire both dries and hardens the part, and puts the Patients to pain and horror. But because that diuiness is corrected with fresh butter, and also heat and some pain are very effectual means to draw to them the peccant humours, and the sick are as much afraid of cutting as they are of burning, neglecting *Hildanus* his arguments; I have burned a seton on the necks of many people with very good success, observing only that way to delude the Patient, which I set down Table XXX. Figure VII.

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Fig. II.

Fol. I

TABVLA XXXV

II



Fig. II. shews 1. the pulling forth of the hairs on the ey-lid according to *Paulus* his way: The ey-lid must be inverted with the fingers, the hairs that prick and hurt the ey must be pulled forth with pullers, and the skin must be cauterized with a little knock at the end of the probe made red hot, that it may be candensed and the hairs may no more grow upon it. 2. The cutting forth of an Atheroma, which bred in the middle of the forehead, and was greater then a Walnut: In this Figure the skin is cut which covers the case of the Atheroma, overthwart with a crooked knife; but in the fourth Figure long waies, that the whole Impostume may be taken forth with its coat. Effects worth consideration do follow the incision made on the forehead overthwart; for the fibras of the muscles of the forehead being cut overthwart, the ey brows hang down, and hinder the opening of the ey-lids; also there follows an incurable palsie of the ey-lids, by reason of the cutting of the nerves; which thing was proved by *Adrianus Spigelius*, upon a small wound only on the nerve of the forehead, as he observed in *Fabr. corp. hum. lib. 7. cap. 2.* But because this kind of Tumor arose in the middle of the muscles of the forehead, and the overthwart incision did hurt to very few fibras of the muscles, there followed upon this no palsie or other inconvenience, which might hinder the eye lids to be lifted up. But that the cutting forth of this Atheroma may be better understood, I shall very brieflie set down the cure of Tumors that are covered with coats.

Tumors with coats, as *Meliceris*, *Atheroma* and *Steotoma*, hang forth either as figs by a slender stalk, (Table XXXIII. Figure II.) or else with a larger root they stick within any part. Those that hang forth are not cut out, but are cut off at the roots in timorous people, a thread being bound about the part to stupifie it, and left there till the swelling falls off; but in stout men they are cut away with a sharp knife. But if the blood runs forth abundantlie after that the Tumor is cut away, or the thread leaves any part of the root behind, then, that we may not fear that it should grow any more, the place must be lightlie touched with a red hot iron, and when the eschar is fallen, we must heal it up again. This way of manual operation is most readie, and by reason the ulcer is but small and equal, the cure is soon done. Those that lie upon the parts with a larger basis, they are either small ends or mean ends, or greater, or very great: the small ends are as big as a small nut, the mean ends are as big as a Walnut, the greater as big as an Egg, and the greatest of all are as big as a Pompion. The greatest of all,

by reason of veins and arteries, cannot be taken forth, wherefore they must be cut off. But amputation or cutting them off according to *Hierom. Fabrit. ab Aquapend.* is done with Pincers, which receive and take fast hold of the whole Impostume as far as the roots of it; which afterwards to hinder the flux of blood, is cut away with red hot knives with sharp edges, all above the pincers, (such a pair of pincers as *Guil. Fabrit. Hildan.* describes *cent. 1. observ. 2.*) without drawing the skin from the bag. Then the place must be dressed with digestives, cleansers, farcoticks and epuloticks. The rest are cut forth and not cut off; the cutting of them forth is performed thus: First of all the Patient must be placed as commodiously as he can be, either on a seat or on a bed opposite to the clear light and to the Chirurgian; and if it be a fearful child or woman, or one that is faint-hearted, he must be bound with his hands behind him, lest either being impatient of pain, he should divers waies with his hands hinder the Operator in his operation, or being frightened he should toss himself every way, as *Marcus Aurel. Severin.* out of *Hippocrates de offic. Med.* warns us *L. de abscessib. anon. cap. 23.* The Patient being seated, the hairs must be shaved away, (if the Tumor be on the head, or else there is no need to do that) and with ink we must mark out the length we mean to cut, which must be as much as the tumor is in roundness; sometimes the Tumor requires a double incision, like to a cross on the skin, and then the first incision must be longer than the second. There is made but one incision upon a small and mean Tumor, especiallie when it sticks to the muscle of the fore head or temples, lest their fibras or vessels should be burnt overthwart. A Tumor that is next to a mean, called a greater, requires to be cut like to a cross; and a Tumor that is covered with hair will admit of the same incision also: Yet in a single and cross fashioned incision, we must take care that the bag underneath the skin be not cut asunder, especiallie in *Meliceris*, for then the humor runs forth, and the tumor falls, so that the bag can hardlie be taken out. And it is necessary that the coat which contains matter like to honie, or to pap, should be taken out whole; for if but the least part of it be left behinde, it will be the occasion to make it grow again: But in *Steatoma*, whereas that fattie tallow, or the more solid substance of the suet hardlie will run forth, there is not so great danger in hurling the bag; and if the tumor do not fall down, the coat may be pulled away very easilie; wherefore the crooked knife, with which onlie the skin must be cut, must have

an edge on the outside that is turned back and blunted, (Fig. II.) incision being made, either but one at length, or two like a cross; the larger part of the probe (Table VIII. Figure VI.) must be thrust in between the skin and the bag, which hath another colour then the skin hath; and with this the bag laid hold on must be parted from the skin, which will be easily done, because the bag doth not stick very fast to the skin: But if the bag round about do stick more fast to the skin, it must be parted with the edge of the knife held slanting, (Table II. Figure I.) and it must be separated underneath with the handle of the knife, (Table XII. Figure IV.) whilst you do make this separation, the blood that runs forth must be continually wiped away with a sponge, that it may not hinder the Operator in his work. If the Chyrurgian come to the bottom of the bag, he must cut the vein that brings nourishment to the tumor; with the edge of the knife overthwartly, that not so much as the least part of the bag may be left, to breed the tumor again. This being done, and the bag perfectly drawn forth, he shall join together the lips of the wound, (which if they be very loose, shew that the skin is too much, and he must cut off the skin that is superfluous, & letting stitching alone at this time, by reason of the great pains the Patient hath endured already) laying plaisters upon linnen cross wise. Thus did I most happily cure two Atheromas, that were as big as Goose-eggs, upon the knee of a certain Priest.

But if the bag be already broken, either of itself, or by the carelessness of the Chyrurgian, then it is necessary that either the tumor grow again, or that there remain in that place almost an incurable and stinking ulcer, where we must consider the time when it broke. If it be broken now, we must thrust in between the skin and the bag the greater end of the probe, or handle of the penknife, untill such time as the membrane of the tumour be totallie separated. But if it break long before, it must be consumed with septicke in those that are more fearful, or with red hot irons in those that are more stout hearted. This being wasted, the wound must be digested, cleansed, and incarnated and cicatrized. See *Ætius Tetrab. 4. serm. 3. cap. 7, 8.* and *Celsus lib. 7. cap. 6.* of the cure of *Meliceris*, *Steatoma* and *Atheroma* by manual operation, which he describes in these words; shaving first all the hair off, if they are covered with hair, you must make incision through the middle, *either long ways, or with a cross*; but the coat of *Steatoma* must be cut also, that what is within it may run

forth, because that coat is not easilie parted from the skin and the flesh of the muscles under it; but in the rest, namelie *Meliceris* and *Atheroma*, the bag must be kept untouched and whole; but forthwith, as the skin is cut, the white coat stretched out shews it self; and then with the haft of the knife the coat must be parted from the skin and flesh, and must be cast out with that is contained within it: Yet if at any time the coat sticks fast to the muscle on the lower part, that that may not be hurt, the upper part of that coat must be cut away with a pair of cizers; and the other part under must be left within; when the whole coat is taken forth, the lips of the wound must be joined, and a band or future must make them fast, (if the sick can away with it) and above all must be laid a glutinative medicament: when the whole coat, or half, which sticks fast to the muscle, or any part of the coat is left within, after corrosives, or a little fire, things must be applied which cause quitter.

Fig. III. Shews the relaxation of the upper eye-lid in the right eye, and the cure of the same in the left; which *Hierom Fabrit. ab Aquapend.* seems to prefer before the absolute and cruel manual way *Celsus* used, in these words: But I, when the upper eye-lid covers the eye, lay on a glutinous matter, (or a linnen cloth wet in my glewing medicament,

Take Dragons Blood,
Frankincense,
Sarcocotta,
Mastich,

Of each one dram, beat all with the white of an Egg, and mingle them, like to the thicknes of Honie) bound on with two or three strings all over the upper eye-lid; and another linnen cloth like the former (as for the strings) I lay above the eye brows on the fore head; then I tie both or all three strings, drawn streight, to the strings underneath, and so the eye is held open: also it comes to pass, that in a convenient space of time, the eye lid relaxed is cured, by means of the said glew that dries and binds, and contracts both the fore-head and the eye-lid. This way of cure succeeds singularly well, because it not only dries up what moisture is run in, but it also hinders all new flux of humors; which thing I tried upon a Noble woman, witness *Georgius Bamlerus*, who would not believe it, till he saw the effect of it with admiration.

Fig. IV. Represents the cutting of the fore-head in fashion like a cross, above the bag of *Atheroma*, whereof I spake before
Fig. II.

Fig. II. making incision upon the skin with a crooked knife; and if the Chirurgicalian cannot part the coat from the skin with this probe, he must part it with his knife, Table II. Figure I. which that he may do as he should, he must proceed warily; and he must use the knife rather slantinglie then streight out, for the streight way will cut too fast, and must needs hurt the bag. In the right eye a disease is represented called *λαγωφθαλμειν*, (that is when the upper eye lid cannot cover the eye) and it is cured in the left, by an invention propounded by *Aquapendens*, which is is most milde, and if it be continued most certain: Let a linnen cloth wet in my glew be applied to the upper eye-lid, fastened to three strings, (1) and another to the cheek, so that it may be right against the upper cloth, with its strings, (2) the glew being dried, and the cloths sticking fast to the skin, their strings must be bound fast together, and be continuallie tied faster: And if these two cloths do not suffice, a third cloth must be laid on the fore head above the eye-brow, with its strings, (3) and a fourth to the cheek beneath the second, and answering directly against the third (4) must be laid on, and these also stick fast; the strings must be tied together, and knit with a double knot, so it will be, that the upper eye lid will be stretched, and drawn to the lower eye-lid, and will cover the eye. *I never tried this way of cure, but I have often seen it used.*

Fig. V. shews the cure of Staphyloma, which sometimes hath a larger basis (*b*) then all the body of it besides, and sometimes a smaller then the rest, (*a*) and this is performed by tying of it, called constriction: If the Staphyloma be in the right eye, the Patient is most commodiousslie seated at the feet of the Chirurgicalian, and leaning back with his head upon the Chirurgicalians knees; if the disease be in the left eye, the Patient must sit on a seat opposite to the Chirurgicalian.

Celsus lib. 7. cap. 7. describes the constriction of Staphyloma that hath a narrow basis: The eye-lids being drawn asunder at the very roots, through the middle of the basis of the Staphyloma overthwart, (from that corner which is proper for the right hand to the other) a needle is passed, carrying with it two pieces of flax, or a double thread; the middle of the double thread being cut asunder, and the needle being removed, we must strongly binde together the two ends of the single thread upon the superiour part, and the two ends of the other thread upon the inferiour part, and these cutting by degrees, do cut it out. But this manual operation, and that which follows, is used not to recover the sight already

lost (for that is impossible) but that moderate comeliness may be repaired to the Patient's content.

Paulus Aegineta lib. 6. de re. med. cap. 19. sets down the cure of Staphyloma that hath a broad basis: wherefore we must pass a needle without a thread, from the lower parts upward, through the basis of the Staphyloma, and another needle drawing after it a double thread, we must pass from that caution of the eye which is to the right hand, to the other, through the bottom of the Staphyloma; and the first needle staying in, which was thrust through without a thread, we must cut the thread in the middle by the needle's eye; and the needle being taken away, we must, by the threads, bind one part of the Staphyloma to the upper parts, and the other toward the nether parts. *Hieron. Fabrit. ab Aquapend.* in both Staphyloma's useth a silken thread not twisted but single; and red, because the colour helps well both for constriction and for section. ¶ The thread being tied together in both diseases, the white of an Egg must be beaten, and wool dipt in it laid upon the eye, to keep off inflammation. The next day after the taking off the ligature, the eye must be dressed with gentle medicaments, untill the threads, together with the Staphyloma, fall away.

Fig. VI. shews the cure of *Pterygium*, which growing first from the internal angle of the eye, extends it self beyond the sight of the eye, and hindring the sight requires manual operation; which being performed by five hands succeeds excellently well, if it be performed that way I now shall shew you. The Patient, as I said concerning Staphyloma, being rightly placed, the Chyrurgian shall apply a glewing linnen cloath both to his upper and under eye-lids, both of which shall have a long string at the end, which the Assistant's hand, being far from the eye, shall lay hold of, and shall draw it to himself, that the eye-lids may be drawn asunder; and being so drawn asunder, may be kept in that posture without any inconvenience to the Chyrurgian in his operation. Another Assistant shall put the ring, Table VIII. Figure V. upon the eye and hold it firm. The eye-lids being thus drawn asunder, and the eye being held firm by the ring, the Chyrurgian very carefully shall put under his small hook with the point of it a little crooked, Table VIII. Figure IX. to lift up the *Pterygium* about the middle of the sight of the eye, that he hurt not the cornea; then he shall thrust a
needle

needle a little bent, which hath in it a single silk thread, of a red colour, under the Pterygium which is lifted up by the hook put under it; and he shall take both ends of the thread in his left hand, and he shall separate the Pterygium stretched forth by the thread, by little and little, from the middle as far as the end of it, with the haft of his knife, Table XII. Figure IV. held in his right hand. This being done let him take away the thread, and with his hook lay hold on that part of the haw that is separated; and having laied hold of it, let him stretch it out, and so continue the separation of the haw with the haft of his knife, untill he come to the great cauton of the eye, where the haw must be so accurately cut forth with the knife, Table XII. Figure II. that nothing may be left of it, which being ulcerated will hardly admit of any cure, nor yet any part of the caruncle may be diminished, lest the disease of the eye called *'qv'as* be caused thereby. This manual operation being performed, driers must be applied to the eye, concerning which see *Sennertus*, *Fabrit. ab Aquapendente* and *Celsus*.

Fig. VII. represents a wound of the right cheek that was made by a cut; and the upper lip was cut as far as the fore-teeth in the middle like to a hare-lip.

Fig. VIII. shews the cure of the aforesaid infirmities: The lips of the wound are brought to touch one the other, and being so brought they are kept so by emplastick linnen cloaths, untill they be healed: But the hare-lip must be helped the way here following. The cloven lip must be taken hold of on both sides with small hooks, and must be separated from the gums with a fit knife, Table II. Figure I. then a linnen cloath must be thrust in betwixt the lip and the gums, that they may not grow together again; and glew on both sides with strings that must be applied: this being done the lips of the fissure must be renewed with a pair of cizers; and being renewed they must be brought to touch one the other with stitchings, which will not so soon break forth again, but by the strings drawn together with the glew are kept so, untill the lips may grow perfectly together by the help of Spanish Balsom.

The

The XXXVI Table.

Of the burning of a rotten Tooth, the cutting forth of one that hurts the cheek, of the feeding of the sick when their mouth is fast closed together, of the stopping of a hole made in the Palate preternaturally, of the dangerous infusion of liquors into the ears, of the drawing the Teeth asunder which are fast joined together, of the depression of the lower Jaw, of the cutting of the band under the Tongue, and of taking things forth which stick in the Throat.

Fig. I. shews how hollow and rotten teeth, to stop the rottenness, are burnt with red hot irons, (fetcht out of Table XIX.) and thrust into them.

Fig. II. shews how a tooth bred out of its place, and offending the cheek, is cut forth with an iron Instrument, Table XI. Fig. II.

Fig. III. represents the Tunnel applied, described and pictured Table X. Figure XI. whose narrow end is put between the outward gums, and the broader end receives the liquid nourishment, and lets it through the narrow end to the throat of those whose teeth are very close shut together.

Fig. IV. shews a Palate eaten away with the French Pox, so that the hole passed through into the cavities of the nose, and hindered the voice from being articulately pronounced; this I stoppt with a golden Instrument, to which a sponge was fastned, whereby the Patient spake his words plainly and distinctly. After the use of the decoction, I touched that hole with red hot irons, which nature, after that some small bones were cast off, filled with flesh; when the ulcer was filled with flesh, I brought it to cicatrize with Gargarisms and drying Errhies.

Fig. V. admonishes the young Practitioners in Chirurgerie, that in curing the disease of the ears, they should rather gently drop in any liquors convenient, than to cast them in violently by a Syringe, least the membrane of the Tympanum break, and there follow incurable deafness.

Fig. VI. draws asunder, with a dilating instrument, (Table IX. Figure IX.) teeth that are closed fast together, that the sick may
not

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XXXVI

Fig. I

II

III

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VIII



not perish for hunger; where we cannot use the Dilatorie, nourishing Clysters are with singular success cast in by the fundament, which I had trial of in *Melchior Fentb*, who by reason of a wound in his stomach, was fourteen daies fed with nothing but Clysters. —

Fig. VII. shews the application of *speculum oris*, very necessary to search the diseases of the jaws, Table XI. Figure IV. For the foresaid instrument not onlie depresses the tongue, but it also keeps the nether jaw pressed down, untill such time as the place affected be more nearlie searched out, medicaments may be applied to it, with the spatula set on the side thereof, and perforated with many holes; sometimes only the tongue is put down, that the faults of the mouth may be seen: The more thick excrements of the tongue are scraped away with the crooked side of the Spatula, which has an edge, and these in very hot burning feavers commonlie stick fast to it.

Fig. VIII. shews the way to cut the string under the tongue that is too strait, and as some think hinders mens speech; which Midwives every where tear asunder with their nailes, and our Barbers imprudentlie rend it with a lancer, oft-times with a great flux of blood, and pain, which afterwards proves the cause of other michiefs; which thing *Hierom Fabrit. ab Aquap.* relates in these words following, annexing withal how we ought to perform this manual operation: Besides the depression of the tongue, and scraping of it, there is a third way of manual operation to be performed about the tongue, when the string under the tongue is cut; of which before I speak, I would give you warning of the rashness of Midwives every where, who in all, making no difference, cut the string under the tongue in every new born child, with the nails of the fore-finger, which they ever keep ready and sharp for that purpose; which office if they should not perform, they cannot believe that the childe will ever speak; as if by nature (O the wonderful and not sufficiently to be lamented ignorance of almost all Midwives) a man could not speak, who hath by nature speech given to him as his proper faculty, without any help of any foolish woman to assist her. — And I saw a childe new born, whilest he was kept in longer then he might stay for the secondines, he neither cried nor felt any trouble; but after that the Midwife unwisely cut the string of his tongue with her nail, he presently fell to crying for pain that he endured: But this is the smallest matter, that truly is of most concernment, namely, that because of that cutting with the nails, oft-times infants

infants cannot lay hold of the nipple of the mother or nurse, nor yet suck the milk, but die for want of it; or else breasts swell that give suck, or which is yet far worse, the parents impute the fault hereof either to hard labor in childe-birth, or coming before the time, or else to the weakness of the childe only to lay hold on the nipple, or to any other cause, rather than to the fault of the Midwife; which being it is the true cause, I much wonder that there is not a provisional Law made to hinder the death of children, which is oft-times procured by Midwives: wherefore I admonish you, that you forbid Midwives to touch the tongues of yours or your friends children with their nails. And if perchance that string under the tongue be greater then it should be, it may be cut at any age, which yet seldom, and very seldom indeed, happens to this string; because Nature would not have made man fit to speak, unless she had made and granted unto him fit instruments for that purpose: And if of an hundred thousand children one child is born with a greater string, where manual operation is needful, there is no difference whether it be cut presently, or after delivery, or after the childe is weaned, or in longer time, so it be done by a skilful Chyrurgian. If this happen, we use to command the Patient to put his tongue beyond his teeth, which *Celsus* indeed laies hold on with the toothed part of the pullers, but we do it with the pincers; sometimes we cannot lay hold of the tongue either with pullers or pincers, as in infants and children, who either will not or know not how to put forth their tongues; for these we must make them cry; then putting a thin and rugged linnen cloth between two fingers, namely the fore-finger and thumb of the left hand, whereby the tongue must be laid hold on and pulled forth, and may be pulled upwards and laid crooked, that the strings may appear, which after this we must cut with the right hand: And taking (not the lancer commonly used by the Barbers, unfit for that purpose) but the penknife that is moderately hooked about the point, we cut the string of the tongue, if it be greater then it should be, overthwart, once, twice, and again, until it be all cut, taking great care that the vessels under it be not hurt, which cannot happen where the Chyrurgian is skilled in Anatomy, who knows exactly the vessels under the tongue, and avoids them with the crooked knife. Thus far *Hier. Fab. ab Aquap.*

Fig. IX. teaches how a fish-bone, or a bone with corners, or any thing else sticking in the throat, whilst we eat, and not going down into the stomach, may be drawn forth with convenient Instruments, or else forced down into the stomach: These strange things

things are drawn forth divers waies ; if they lie in sight , they are laid hold on with the right pullers , Table IV. Figure I. and are pulled out of the throat , putting in the *Speculum oris* in the mean time ; and if a thorn or bone , or any other things , when the mouth is open , and the tongue is pressed down by the *Speculum oris* , cannot come to be seen , when they are sunk down deeper into the throat , then being laid hold on with the crooked pullers , Table X. Figure I. they must be drawn forth with the Instrument , Table X. Figure II. thrust into the throat , and hitting against them. Others after meat provoke the stomach to vomit , putting their fingers , or feathers anointed with oil of sweet Almonds , into the throat , that together with the meat , a thorn , or any strange thing , may be cast out of the mouth. But since oft-times the putting forth of bones and thorns is in vain attempted by the said waies or Instruments , *Hierom Fabrit. ab Aquapend.* takes a candle of white wax , as great as a mans little finger , and somewhat crooked , which he delivers to the Patient , that he may thrust that into his own throat , untill such time as the strange bodie may , being forced , go down into the stomach. —

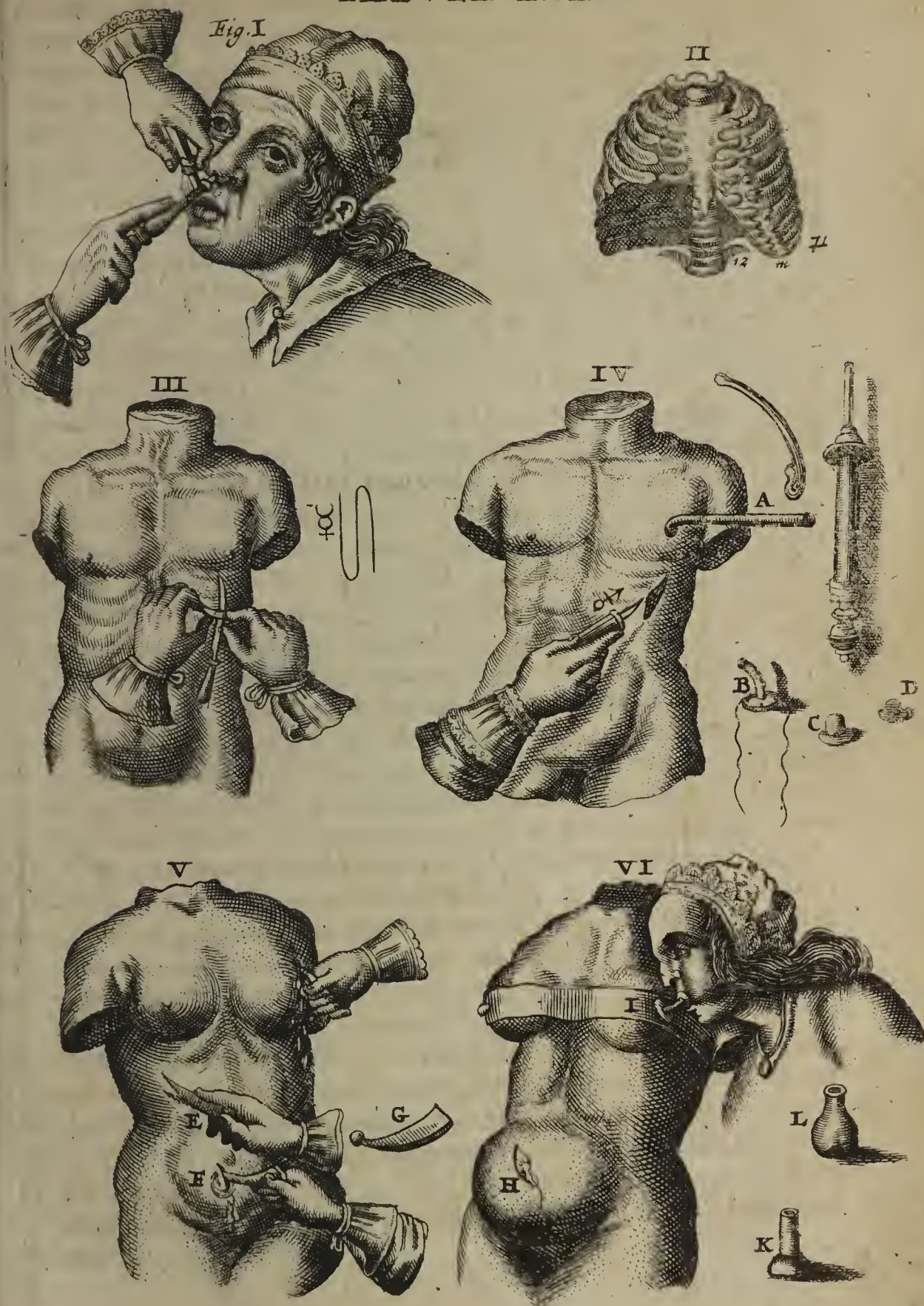
Others for the same purpose command us to swallow down great gobbets ; some tie a leaden bullet fast to a thread , and they swallow this often , and pull it forth again , and so what sticks fast in the throat , is thrust into the stomach ; when any thing sticking in the throat can neither be taken forth at the mouth , nor forced down into the stomach , *Fabrit. ab Aquap.* from *Paulus* and *Leonides* , leaves the whole business to nature and time. \

The XXXVII Table.

Of cauterizing the nostrils for ozena , and chiefly after the cutting forth of a Polypus ; and of Paulus and Hippocrates his way of ordering Paracentesis in the Thorax ; of the dilating and curing wounds of the Thorax , brest and Abdomen , and to bring forth the nipples of such as give suck.

FIG. I. teaches how the nostrils ulcerated onlie , or where there is also corruption of the bone , are cauterized by hot burning irons thrust through pipes. To this join those things which were spoken

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spoken before, Table IX. Figure III, IV, V and VI. I cured a Tailor at Padua who kept the house by reason of an ozæna from the Frenchpox, which after the inward use of the decoction of *gnaicum*, for two whole years was dressed by a principal Barber of that place, with medicaments prepared with Antimony and Mercury. But when these could do no good, the Patient by the Chyrurgian sought the advice and help of D. D. *Spigelius*; but *Spigelius* at that time was sick and could not go forth to see the Patient, wherefore he joined me with that Chyrurgian in ordinary, and he commanded me to make a tent of fine lint. and that I should thrust that into the nostril that was ill, and that I should leave it there for a natural day, that so we might learn the situation, quantity and quality of the ozæna; I obeyed his command and pulled forth the tent, which I found near the point, and on the right side, foul with a round spot, and stinking exceedingly, and I shewed this to *Spigelius*, who so soon as he saw this, said that the ulcer was in the supream part of the nostrils; namely upon the grisly part, and that on the right side not very great, but it was join'd with corruption of the bone, which required cauterizing. When I asked him the reason of what he had said, he gave this which follows; because the tent is foul almost at the point, the ulcer hath its situation in the top of the nostril; and because the tent is only spotted outwardly, of necessity the left side only is affected, yet with no very great ulcer, because the spot is small; but the bone is also corrupted with it, because the tent is black and stinks exceedingly; there is need of manual operation, because for so long time, untill now, such medicaments have been applied in vain, which had not the bone been corrupted also, would have brought the ulcer to cicatrize long since. He left this manual operation or burning the nostril through a pipe unto my care, as being very easie and the first of my manual operations; wherefore I chose a pipe (for *Spigelius* had divers) fit for the purpose (namely that which had a hole in the side, described Table VII. Figure IV.) and I wrapt that in lint pressed out with sharp black wine to defend the parts that were sound; this I thrust into the nostril that was ulcerated, that the hole of the said pipe might equal the ulcer; the pipe being thus prepared and thrust into the nostril, I took the iron instrument, Table IX. Figure VI. made very red hot, and this I thrust through the pipe unto the place affected, and

and I drew the same presently forth again; and thus I did pulling the red hot iron out, and putting it in again, four or five times at the most; *but I did this very suddenly, and therefore two red hot irons are requisite, as I admonished in the place quoted.* After cauterizing, Nature, (the pain being first abated, and the eschar taken off) being helped by medicaments, separated the scale from the bone in fourteen daies; and the ulcer, with drying things applied to it, was brought to cicatrize.

I tried this manual operation afterwards, in many, with happy success (though the Germans, and chiefly those of Ulma, do exceedingly abhor all cauterizing by fire), alwaies closing both the Patient's eyes with cotton and a band over it, to hinder them from the sight of the red hot iron.

An Ozæna of the nostrils be it with or without suspicion of the French Pox, but without any rottenness of the bone, if it cannot be cured with medicaments, requires a pipe that is all solid, Table IX. Figure V. which, to speak the truth, I never used myself, neither did I ever see any man else do it. But a certain Student of Millan told me that *Hierom. Fabrit. ab Aquapendente*, did with most happy success cauterize him with a red hot iron thrust through a pipe that was all solid.

Without doubt the way he went was that which the Authour himself describes. An iron pipe must be thrust in (that is all solid, Table IX. Figure V. not wrapped up in lint, but smeared over well with the white of an Egg beaten together) it must be so long that it may equal the length of the ulcer, and the hollow of the nostrils may be equalled by it; and through this must a red hot iron be thrust which shall touch nothing but the pipe. It must be so done that the red hot iron may heat the pipe, and the pipe the nostrils and the ozæna; yet I desire not that the nostrils should feel any pain by this heat, but that the place ulcerated might be healed without feeling any pain, as hot only as the Patient can well indure it; when you find that, then must the pipe presently be pulled forth of the nostrils, and then thrust in again; and so often must the red hot iron be thrust in and pulled out, which may only heat untill such time as the part is sufficiently tried; for by often doing of it, and the heat renewed still without pain, supplies the room of cauterizing, namely by drying and corroborating the part, and digesting the tumours, and so healing the ulcer.

L

Fig.

Fig. II. shews the ribs of the Thorax laid bare, that young Chyrurgians may better understand what is said underneath concerning the perforation of the Thorax; wherefore (♀) shews *Paulus* his place, and (○) the place somewhat lower then *Paulus* used, and (℥) shews *Hippocrates* his place; for in these places mentioned the Thorax useth to be opened for all sorts of impostumes.

Fig. III. (♂) shews a threefold thread, wherewith *Paulus* his place, and the place beneath it is found: (h) shews the incision of the skin alone, above the muscles between the ribs; and this is done only with the instrument called the Woodcocks bill.

Fig. IV. shews 1. How in wounds of the Thorax that penetrate into the cavity, the blood is drawn forth by a pipe (described A Table XII. Figure IX.) 2. What pipe is necessary after the cutting of the Thorax (♂) (B Table XII. Figure XII. &c.) a silver cap (Table XIII. Figure VIII.) a sponge (D) and a syringe must be used for the casting in of convenient liquors into the Thorax, (C Table XIII. Figure II.) 3. How the Thorax must be perforated, and what we must do after we have opened the Thorax either as *Paulus* or as *Hippocrates* teacheth us. But before we open the Thorax four things must be considered: 1. Whether we shall use manual operation or not? 2. At what time. 3. In what place. 4. After what fashion. Four things will signifie whether it be to be done or not? 1. The disease. 2. The time of the year. 3. The forces of the Patient. 4. The greatness of the disease; namely whether much matter must be voided forth. —

I. The Disease if it be in the cavity of the Thorax, so that either corruption run forth of the wound into the Thorax, from some impostume of the Lungs, or from a Plurisie, or cholerick matter from an Erysipelas of the Lungs. or a watry humour from a Dropsie of the Thorax; or bloody moisture like to the washing of raw flesh or blood: we know this collection of matter; First by breathing, which is only difficult in drawing in the breath; because the Lungs, by reason of the matter collected, cannot dilate themselves; but not when we put forth our breath, when the matter by its weight presse h the Lungs. — Secondly, from the Pulses, that are more quick, vehement, frequent, small, unequal, unordinate. Thirdly, by a Feaver going

ing before, with more vehement accidents. Fourthly, by the difficult lying on the sound side, because the faulty matter lieth upon the Lungs, which burthens them that they cannot move freely here and there. Fifthly, from a waving up and down, perceived to be in the hollow of the Thorax. Sixthly, to these we may add a cough, which yet is not alwaies present in every posture of the Lungs; but only then when the matter is contained in the pipes of the Lungs, which provokes the inward coat of the sharp Artery, and the head of it (parts that are of exquisite feeling) either by the quantity or acrimony of it, and so makes a man cough. —

II. The time of the year; *Hippocrates* bids us avoid the Winter and Summer Solstices, because in those times there is made the greatest and almost sudden change of the Air; or else when alwaies after incision made, some air passeth into the Thorax; but especially when the matter comes forth by the newly made wound, the aforesaid times must be avoided as much as possibly may be.

III. The Forces: For unless the forces stand firm or moderately good, this manual operation must be omitted for a time, lest this noble remedy of opening the Thorax otherwise, might be defamed by the death of the Patient. Now Physicians commonly measure the Patients forces by the Pulses, which yet in this case may deceive them, because such matter collected in the Thorax maketh the Pulses small, quick, frequent and unordinate; but the most certain sign of forces remaining, is when the sick can sit or walk by the help of natures strength, or with the help of a staff. —

IV. The Quantity: for if there be but a small quantity of matter in the Thorax, we have no need to open it, for nature will either digest it, or else send it forth by the urinary passages, or some other waies, but if there be much matter, we must presently without any delay fall to make incision, lest the sick should be choaked with quantity of matter, or the Lungs should be corrupted with the ill quality of it. —

But at what time? *Hippocrates* seems to have intimated that unto us, *Lib. 6. epid. sect. 7, text. 9.* we must presently open those whose Thorax is hydropical; but we must presently cauterize, with hot irons, those which are in Consumptions. Interpreters have interpreted both words, *ὑδροπικόν* and *ἀντίνα* to sig-

nise presently; but *ἄρῃον* here, signifies less; as if *Hippocrates* had said, that those that are hydropical must not be so soon opened or cauterized; but those that consume must be presently opened or cauterized. The reason is, because where men are hydropical, the matter is collected in the Thorax by little and little, and therefore there is no need to make incision presently at the beginning; for so at length that collection will do hurt when it is in great quantity. But such as are in Consumptions, having impostumes in their Lungs, do as it were at one time collect all the matter when the impostume breaks, wherefore the Thorax must be presently opened. 1. That the Patient may not be choaked by reason of the dilating of the Lungs, hindered by the quantity of the corrupt matter. 2. Lest that from the corroding corruption, any ulcer should breed in the Lungs or other part of the Thorax, which can hardly, or not at all, be cured afterwards.

In what place? The place must be such wherein incision may be safely made; now the places are many, before, behind, on the sides, above or below; but neither before nor behind is the opening of the Thorax good or safe, by reason of the muscle of the breast, and the muscles of the back, which are full of nerves, which are very dangerous to be cut; wherefore it remains that the opening must be made on the side, and that below or above, for on the side the muscles do not stick so fast to the breast, yet before sometimes; namely on the region of the Sternon; if the matter be collected between the *mediastinum*, apertion is wont to be made. Wherefore *Paulus lib. 6. cap. 4.* opens the Thorax in the upper part of the side: But *Hippocrates lib. 2. de Morbis*, in the lower part. In the upper part between the fifth and sixth rib, counting from above; (Table XXXVII. Figure II. (♀:)) in the lower part, between the third and fourth rib, counting from the lower ribs (Table XXXVII. Figure II. (♂.))

Paulus found his place by numbring the vertebraes of the Thorax, beginning from the uppermost, between the fifth and sixth vertebra, he puts a thread on the point of the *spina dorsi*; and he brings it to the middle of the *sternum*: then he takes the third part of the thread, which he measureth from the *sternum* to the *spina dorsi*; and whither the end of the threefold thread reacheth, that place he marks with ink; which being so marked makes a right and perpendicular line with the nipple of the breasts (Table XXXVII. Figure III. ♀.)

Hippocrates openeth the breast between the third and fourth rib, coun-

counting from the lower ribs; and the reason is, because by this means the matter and other things contained in the Thorax will run forth the better; and he chuses the place where there is that eminence and binding of the ribs, to which the muscles grow; but not upon it, or backwards towards the back, because the nervous muscles there, hinder the opening of that place; but it must be done a little forward, or toward the Sternum, (Table XXXVII. Figure II. 2.) There seems indeed in this place to be danger, by reason of the Diaphragma, least that should be hurt; yet there is no danger, because the Diaphragma, where it sticks to the ribs, doth not rise so high, (for it is kept down by the matter) that it cannot be hurt; but where the matter is collected, there we must attempt to open the part. If it be on the left side, let the Thorax be opened on the left side; if it be on the right side, open on the right side; if on both, open both sides. But of these places mentioned, that of *Hippocrates* is to be chosen; because the corruption of strange matter collected in the Thorax, by reason of the more declining situation of the part opened, will come forth better then it will where *Paulus* appoints the orifice to be made; yet this is not simply to be despised, for if the matter be more diligently considered, and the orifice be to be made on the right side, the place *Paulus* appoints is better then the place of *Hippocrates*; because on the right side, the liver with its gibbous part drives the Diaphragma upward; but on the left side the place of *Hippocrates* is best made choice of, because the Diaphragma, by reason of the more low situation of the spleen, and plenty of matter, may be thrust down towards the lower parts; wherefore *Hippocrates* saith, L. 2. de Morbis, It were to be wished, that the matter would alwaies lie down on the left side to be evacuated, or lower then *Paulus* his place, namely, between the sixth and seventh rib, (Table XXXVII. Figure II.) for the Diaphragma doth not ascend so high in those that are living, as in those that are dead; wherefore in these places, the Thorax is opened without offence done to the Pericranium, Lungs, or Septum Transversum.

But the way is this; The opening of the Thorax is performed either by incision, burning or perforation. *Hippocrates* makes mention of incision and burning, Sect. 7. Aph. 47. when he saith, Whoever are impostumated, must either be burnt or cut, &c. but he speaks of cauterizing, L. 2. de Morbis. In all these three waies, we must consider the Patient's lying down, his breathing, the instruments and the operation. After his lying down, both the

body and arm of the Patient, on that side must be opened, must have a middle figure, that the muscles be not contracted too much; wherefore in *Paulus* his way, let the sick lie on his back, but in *Hippocrates* his way upon his belly. As for his breathing in *Hippocrates* method, the Patient must breathe out, that the Lungs may fall down; but in *Paulus* his method, he must hold his breath, that the Diaphragma may be thrust lower. The instruments vary, as the waies of operation are divers. For incision *Hippocrates* useth a sharp knife, described Table II. Figure I. and that instrument which is called Spatha; but *Paulus* opens the Thorax with a Wood-cocks bill; namely, with a long little sword, and somewhat crooked at the point, (Table XII. Figure I.) but the new Practitioners use both knives. For cauterizing *Hippocrates* useth a long iron instrument, and not very thick; because that after cauterizing, the hole may be made larger then the thickness of the instrument was; *Hippocrates* also perforates the side with a hollow piercer, made with a screw fashioned, (not one that is solid, such as Cobblers use when they make holes in shooe-soles to draw their threads through.) These three operations must be used according to the diversity of the matter contained in the Thorax; for since one kind of matter is thick, and another is thin, that requires a greater hole to come forth by, and this a lesser; wherefore in thick matter, when the corruption is collected, incision must be made; but where the matter is thin and watry, as where there is a dropsie of the Thorax, *Paulus* and *Hippocrates* both think that the breast must be opened, either by burning the muscles or perforating the side. The latter Practitioners prefer incision before cauterizing or perforation, which they make less for a dropsie of the Thorax, and greater for an Impostume, and greatest of all where there is a collection of phlegmatick matter. Incision of the Thorax is performed thus; The place being found, and noted with ink, the sick must be placed in a middle posture; then with a pen-knife (Table XII. Figure I. and of this Table Figure III. H.) it must be cut oblickly toward the superior and inferior parts; then the pen-knife, (Table II. Figure I.) bound about with a white wollen cloth, (so that the point at the top of it may stick forth no more then the breadth of the nail of the great finger, least being thrust in deeper then it should, it may do any hurt) being applied to the outward muscles between the ribs, must be thrust in by little and little by degrees, untill it penetrate into the hollow of the Thorax, (of this Table Figure IV. I.) But if this wound, be-

sides

fides our expectation, be too narrow, and the matter too thick, then either it must be dilated with a pen-knife (Table XII. Fig. I. and of this Table Figure V. E.) which cannot hurt the Lungs, by reason of the obstacle placed at the end of it; or else to make the matter more liquid, honie and water must be cast into the Thorax by a Syringe, of this Table Figure IV. Q) incision being made, the matter contained in the Thorax must be let out, (yet not all at one time, lest the Patient's forces fail, or something worse succeed it; if we would let it all forth at once, then nature, which is accustomed almost to the matter collected, will feel some vacuum, to avoid which, she will send all the humors almost in the body for a supply, whence there will arise a greater Impostumation then there was before) daily six ounces, or as much as the Patient's forces will suffer. This quantity of matter being let forth, the wound must be stopped every day with a tent made of hards, or raw flax, and tied by a thread untill the tenth day, when almost all the matter is let out; for five daies wine and oyl warmed, must be poured in by a pipe, (of this Table Figure IV. Q) that the lungs which are used to be moistned, should not grow dry suddenly. Then a silver pipe (of this Table Figure IV. B.) must be put in, that the liquor poured in morning and evening may be let forth, (for that which is poured into the Thorax in the morning, will come forth by the evening; and what is poured in at evening, will come forth by morning.) After the fifteenth day that incision hath been made, instead of a silver pipe, put in a tent of lint smeared with white wax, hollow, lest the wound degenerate into an incurable fistula, or the matter remain in the Thorax. When the Thorax is wholly dried, put in a hollow tent of lint, made up with wax, that for length and thickness must daily be made less, untill such time as the wound filled with flesh may be covered with a cicatrize. But where the matter is watry, or thin corruption, presently after that the Thorax is opened, a pipe must be put into the hole, that fits it exactly; and into the pipe a tent tied to a thread, that the water or thin corruption may not run forth all at once, and the sick die, (as Hippocrates admonishes *Sect. 6. Aph. 27.*) but that so much of the matter only may be let forth, as the Patient's forces can suffer. But if by reason of the coldness of the Ague, or any other cause, it be not convenient to let out the matter once or twice a day, we must put a small sponge into the pipe, found in this Table Figure W. D. and the small cap (of this Table W. C) must be put upon it, that the

matter almost every moment may sweat through the holes of *i* by degrees, and without any loss to the Patient's forces.

Fig. V. represents the dilating of wounds of the Thorax, and of the Abdomen, which must be performed with sharp knives.

A wound upon any part of the Thorax, either penetrates and perforates the Pleura, or it doth not penetrate nor prick that. Again, it is either a narrow wound or a broad; and both of these either with hurt done to the parts within, or with no hurt done to them.

A wound of the Thorax received below the sixth rib, and penetrating into the cavity, and not hurting the inward parts, yet is broad enough, it must never be stitched or cured by the first intention, lest the passage for the matter to come forth, which is run into the hollow of the Thorax, may be stopt up, with danger to the Patient's life; but first a tent must be put in, made of raw lint, tied to a thread, (least when the breath is drawn in, it be sucked into the Thorax) and wet in such things as stop blood, that the wound may remain open; on the second and the daies following, the wound must be digested with a tent made of a linnen cloth a little worn, and anointed with medicaments that move corruption; and it must be kept open, that the matter collected within may freely come forth.

And if the matter collected in the Thorax be gross, and not fit to come forth by the wound, it must be attenuated by injecting lotions for some daies, made of the decoction of Barly, Raisins, and Hony of Roses, and a silver pipe must be put into the wound, (of this Table Figure IV. B) anointed with a digestive, and stopt with a sponge, (of the same Table Figure IV. D) and covered with a little cap C, of the same Table, that the matter and the decoction cast in may be purged forth by little and little; when the corrupt matter is conveniently purged forth, instead of the silver pipe with shoulders, a tent must be put in made of waxed lint, and hollow, and wet with a farcotick medicament, which must every day, as I said before, be made less and shorter, that it may not hinder the breeding of the flesh; when the said wound is narrow, it must be presently dilated with the sharp knife, (E of this Figure) to let forth the matter. A wound piercing in above the fifth rib of the Thorax, be it large or narrow, must be kept open with a tent wet in desiccating medicaments, and tied by a thread, that the same day or the next, the blood which is not yet congealed in the Thorax, may be let forth by a pipe put into it, of this Table Figure IV. A.

But

But if the matter, by reason of its thicknes or higher scitu-
tion of the wound, cannot come forth by this pipe, we must in
time propound the opening of the Thotax; and when the Pati-
ent, or his kinsfolk that stand by, yeeld unto it, it must be
done after the manner delivered more at large in the explication
of the Figure III. and IV. of this Table. This help of manual
operation being not presently admitted; when the matter can-
not run forth by the hole, either of it self broad enough, or in
vain dilated with an incision knife, we must try, foreshewing
the danger of the Patient's life, to void it forth by diureticks
given at the mouth, rather than to expectorate it by llohostes.

In wounds of the Thorax with a small incision of the Lungs
or Diaphragma in the fleshy part, we must not only attempt to
drive out the matter by the wound, either of it self large enough,
or dilated by an incision knife, or by some new hole made, or
by the urinary passages; but we must pour into the Thorax, by
a syringe, first a decoction that binds the bleeding veins: Se-
condly, one that attenuates the thick matter: Thirdly, one
that cleanseth the inward wound: And lastly in the fourth place
one that will heal it.

When a wound pierceth into the Abdomen, the caul or the
intestines slip forth; if the caul be slipt forth, we must consider
whether it be yet sound or corrupted; if it be sound, then it
must be presently washed in hot wine, and be gently put in
again with ones fingers; then the lips of the wound must be
drawn together again till they touch one the other; and being
so drawn it must be kept so with stitchings, described Table
XXXIX. Figure V. But if the Siphac be corrupted, it must
be drawn forth, and must be tied very strongly with a single
red silk; and then the part that is corrupted, that is bound,
must be cut off above the thread, with a sharp knife; but the
rest which is sound must be washed in hot wine, and must be
gently reduced into the Abdomen, the long thread hanging
forth without side; then the wound must be joined with sutures
now mentioned; yet so that some space may be left where the
thread hangeth forth: but if the Intestines be come forth, they
must presently, before they be filled with wind, be thrust in
again gently with the fingers, without violence, and so be hid
under the Abdomen. If the hole or wound of the Abdomen
be narrow, and the intestine is fallen forth, and by long stay-
ing

ing without the belly, by the cold air coming to it, it be filled with wind, and so swoln that it is impossible to put it in again with our hands, then let it be long fomented with a sponge wet in hot wine, and pressed forth again; or with a bundle of raw flax boiled in a ly that is sharp, that the winds may be dispersed; then let it be reduced, and let the wound of the Abdomen be stitched up as it ought to be. If by this means the intestine cannot be reduced, the wound must be dilated with a knife, called *Syringotoma*, (G and F) that the intestine may be let in, and the wound, dilated according to *Galen's* rule, may be sewed up again. ✓

Fig. VI. H. But if under a wound that pierced into the Abdomen, the intestines be wounded by cutting, then they must be gently drawn forth, and sewed the same way that Furriers sew their skins, leaving behind a piece of the threak spun from flax, that it may hang forth without the wound of the Abdomen; after that let them be washed with warm wine, and be gently put back into their own place. Lastly, on the sutures of the guts put in again, you must strew powders of Frankincense, Mastic, Pellitory of Spain, &c. and the wound of the Abdomen must be united with latches.

The nipples of those that give suck (I) are oftentimes so hid within the breasts, that the Child new born can neither take hold of them with its mouth, nor suck any milk out of them. In such a case let either the child's nurse set either the bottom of the glass (pictured Table XVI. Fig. I.) to the nipple that lies hid, and lay hold of the mouth of the pipe with her mouth, and draw forth the nipple by sucking; or one that is of years shall set the long glass (K) to the nipple, and with a band shall bind it fast to the breast; and when this is done, let her take the narrower end of the glass between her lips, and drawing as before, let her suck forth the nipple that lieth hid. *Amatus Lusitanus* filleth a glass with a narrow mouth L with scalding water, which he poureth forth again when the glass is made very hot with it, and he presently claps the mouth of the glass to the nipple; for this presently sticks fast to the nipple, and draws it out so forcibly, that the Child may easily lay hold of it with its mouth. Moreover these instruments not only draw out the nipples, but milk also. But if there be no need to draw forth milk with the nipple, a thumb-stall

stall made of Ivy wood, is most safely set on to draw forth the nipples.

The XXXVIII Table.

Of the cutting off of a breast with an ulcerated Canker in it; of the perforation of the bottom of Fistulae creeping under the ribs; of Celsus his way to bind the navil, and of a girdle for the navil.

FIG. I. represents a breast affected with an ulcerated Canker, the basis whereof is thrust through with two needles (Table XII. Figure VIII.) drawing after them a twisted flaxen thread.

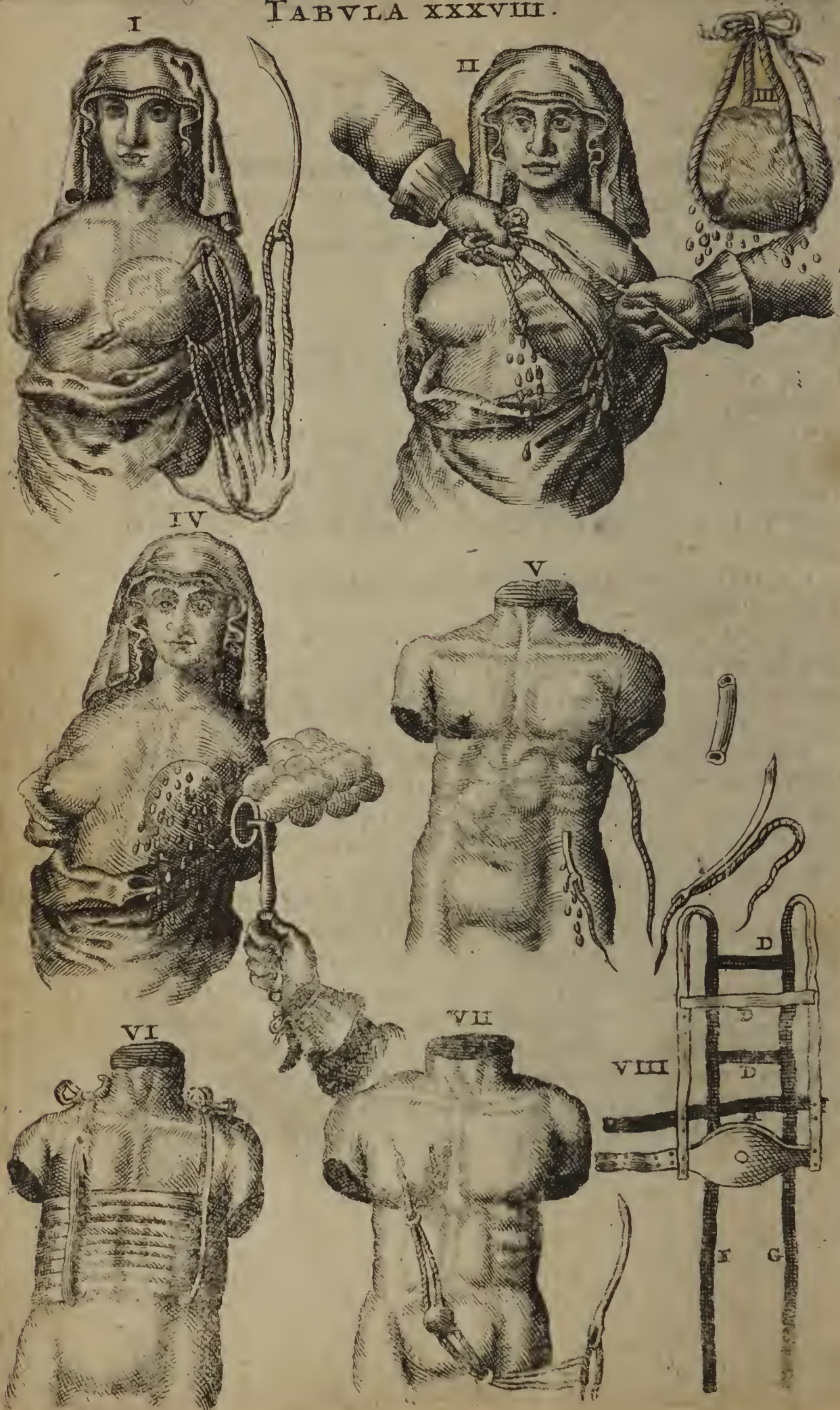
Fig. II. shews how the Chyrurgian takes hold, with his left hand, of the ends of the threads that were thrust through, and with his right hand he takes the knife, Table XII. Figure VII. and with that he cutteth the Canker out by the roots.

Fig. III. shews a Canker cut from the breast, weighing six Physical pounds. —

Fig. IV. shews how the Chyrurgian, after the cutting off of a breast ulcerated, doth lightly cauterize the place with a red hot iron, (see underneath a singular History) at least to corroborate the part,

Fig. V. is the instrument of Hieron. *Fabritius ab Aquapendente*, wherewith a Fistula of the Thorax is perforated, which, from the space above between the ribs, doth insinuate it self under one or two ribs or more; namely between the Pleura and the ribs, untill such time as it ends in some space of the ribs underneath. The point is thrust into a silver pipe that is crooked (a) as far as the bottom of the Fistula, that it may look outwards; then through the pipe thrust into the Fistula a long needle is forced (b) which far from the point hath an eye and carrieth a thread with it, that the bottom of the Fistula may be perforated, and the thread may come forth at the upper and lower end of the Fistula; when the bottom of the Fistula is perforated, let the needle be taken forth by the new hole made in the Fistula, and let the ends of the thread be tied together, that the holes of the
Fistula

TABVLA XXXVIII.



Fistula may be kept open, and the corrupt matter may run forth beneath, untill such time as this Fistula under the ribs may be either filled up with flesh, or be made grow toge her. Concerning other Fistulaes of the Thorax, see undernath Tab. XXXIX, Figure IV.

Fig. VI. is *Sosratus* his band, which is most convenient where the breast is affected with any disease that requires binding *Galen lib. de Fasciis, cap. 81.* describes this; it is most convenient where we desire to bind the middle of the breast, or the back, or sides, or Thorax; especially for a wound of the Thorax, or fracture of the ribs: wherefore we cast two small bands, three fingers broad, and of a fit length, over the upper points of the shoulders, and we suffer the two right ends of them to hang down; then with the band folded together, or with one end we bind the whole Thorax, and the sides that they may be covered; and we tie the end of the band with a knot; but the ends that hang down both before and behind, are to be sewed to the circumvolutions of the band; and if they be too long, we turn them upwards and there gather them together where the throat is join'd with the broad bone of the shoulders.

Fig. VII. shews how *Celsus* cured the sticking forth of the navil by manual operation. The body of the Patient being laid upwards (that whether the intestine or the caul, or both be slipt forward by the navil oftentimes dilated, it may be put in again) he takes hold of the navil with a pair of pincers, and draws it to him, and he passeth quire through it, at the basis, a needle that draws after it two single silk threads uncoloured; then he cuts off the threads, by the needles eye, with a pen-knife, and tying together the ends of both the threads, he binds the root of the navil, lifted up, very strongly; that the part of it, above the band, may die and fall away. Yet because the sick will not so easily admit of the said manual operation of *Celsus*, there is a more gentle way found out by *Hierom. Fabrit. ab Aquapend.* which I have often proved, which he performs with a medicament and a truss of the following figure.

Upon this occasion I thought fit to insert, not undeservedly, a most rare relaxation of the navil in an infant; and a preternatural falling forward of the intestines hanging forth of the body, by reason of a sudden impression from the Mothers imagination; which I received the 14. of January, Anno 1643. from the most famous

famous Doctor, *Dr. Iohan, Georg Cocklius*, ordinary Phylosopher to our Republick, and diligent Physitian, and my most honored Colleague; A certain Countrey woman of Berenstate, (so the words were) in the jurisdiction of *Vlma*, wife to *Jacob Hicker*, in the time of harvest before, but in the first months of her being with child, whilst she followed her business in the Country, and gathered the gleanings of corn that were scattered up and down the field, under one of them she suddenly perceived a heap of vipers creeping, and clapping her hand upon her navil, she did so strongly imagine concerning their motion and shape, that although she was well all the time she was with childe, yet yesterday about twilight in the evening, she brought forth a daughter, christened presently by the name of Barbara, and lively in all other respects; but by reason of that imagination imprinted in her, she was not well formed; for all the intestines of this childe, which naturally otherwise, should be hid in the lower part of her belly, here preternaturally, by reason of the navel relaxed, stuck without the body, as hid in a great wallet, and were covered only with the peritonæum, and so were apparent to be seen; which moreover, being now placed out of the belly, (and wanting the natural and preferring heat) were hurt by the cold air that came to them, (and so bound up) that neither by the help of a warm stove, nor by warm clothes, nor yet by any help of the Physitian, could be kept in their natural state; wherefore two daies being past, the next Lord's day, having scarcely seen the world, she departed to the place of the blessed.

Fig. VIII. A. is a truss for the navil, made of a double cotton linnen cloth, which on that part E, which covers the navil, was a buckler, made like to a hard cake, in the centre whereof there was a little round knob of lint wrapt together, which goes into the dilatation of the navil, that it may hinder the intestine or caule, or both to come forth again; but first there must be laid on a binding cerat, spread upon soft leather, after that, the truss being applied, the Abdomen must be bound; some to the girdle for the navil A, add the bands to pass over the shoulders B, C, which must be fastned together with three overthwart straps D, and so they fasten the girdle of the shoulders that it may not fall down, but may stick fast upon the region of the navil; but they are not necessary, because the hanch bones hinder the girdle to fall downwards, and the straps underneath F, G, will not let it rise upwards.

The

The XXXIX Table.

Of the girdle applied to the sticking forth of the navil, and of the way to perforate the Abdomen; of cutting the external Fistulas of the Thorax, stitching the wounds of the Abdomen; of applying the Truss, and provoking urine suppressed.

FIG. I. shews the girdle for the navil, of the former Table Figure VIII. applied to a man, with which alone I have cured many navils sticking forth, where they did not come forth very much, both in men and women, children and others of full years, and I hindered these tumors from growing any greater.

Fig. II. and III. shew the place, the manner, and the instruments for to use the paracentesis, performed upon the Abdomen of hydropical people. Also about this manual operation there are four things to be considered: 1. Whether it be to be done? 2. At what time? 3. In what place? 4. After what manner? Whether it be to be done, is signified by the disease and the forces of the Patient, whether the disease be Ascites only, or water be mingled with the other kindes of dropfies; namely, if the tumour of the Abdomen, especially from the much drinking of water, came in a short space to a huge magnitude, and medicaments given at the mouth help not, because the vertue of them cannot be brought into act, the natural heat being oppressed with the plenty of humor. The forces must be firm, which may be known when the sick can stand upright, or sit on a seat and finde no inconvenience; therefore where the disease is old, and the forces are weak, (the judications whereof are old age, child hood, coughs, scouring, cachoxia, a burning fever preceding, and a schirrus, and corruption of the bowels) manual operation hath no place there. The time is presently; namely, before the humor shut up in the Abdomen, hath brought any notable hurt to the bowels and other inward parts. The place where Paracentesis is made, is either in the navil or under the navil, three or four fingers broad of the Patient being put between, and that on the right side or left side, but never in the middle of the Abdomen by a white line; where the navil is so relaxed or swollen, that between the outward part, and the inward cavity and water, only a very thin skin passeth, which is perceived



perceived by the touch alone, or by pressing it with the finger, and by the clearness, there the Abdomen is most conveniently opened in the navil; but if that looseness of the navil appears not, then that part of the Abdomen under the navil, on the right side, must be opened where the spleen is faulty, and on the left side, if ascites grew from the fault of the liver.

The manner comprehends the situation of the Patient, the instruments and reason of the operation: The Patient, who by reason of water hath his paunch much swoln and stretched forth, must be laid in his bed upon his back, or else must sit upon a low seat. The instruments wherewith the bellies of hydropical people are most commodiously opened, are of two sorts; namely, either the instrument consisting of a pipe with shoulders, H, and a needle, I, Table XII. Figure XVII. to perforate the navil with, or the pen-knife K a little blunted at the point, and having an edge only on one side, Table XII. Figure I. to open the Abdomen below the navil. The navil is most safely perforated, if the instrument with a pipe, Table XII. Figure XVII. be sewed to a band, and that be thrust into the middle of it L, untill it come to the star marked upon it; after this the needle must be taken forth of the pipe, and the pipe must be thrust into the Abdomen as far as the shoulder of it, and must be left there. Incision when it is needful below the navil varieth much: *Fallopins* makes his incision thus; first he cuts the skin overthwart the Abdomen an inch broad with a crooked knife, and that is blunt on the other side; this being cut, he cuts therest warily with a pen knife, wherewith the Germans open a vein to let blood, namely with a common lancet. *Herom Fabrit ab Aquapend.* useth the same knife *Fallopins* doth; but he puts that into the skin a little slanting, untill he penetrate as far as the hollow region, and have also perforated the peritonæum. That the knife penetrated as far as the hollow part, not only is shewed by the water coming forth, but it is known by a Chyrurgian exercised in opening impostumes, whenas nothing resists when he presseth; when incision is made, he pulls forth his knife, and puts in a small pipe of silver well polished, with shoulders, and with holes in the sides of it, longer the first time (and afterwards shorter N, which may only go into the cavity) at the end slanting, exactly fitted to the knife, and tied to a band, that it may not slip out of the hole O; by this pipe he lets out the watry humor, not all at one time, but so much as the Patient's strength will suffer, which is known most perfectly and certainly by the pulse. The watry

M

humor

humor being let forth in a due quantity, he doth not draw forth the pipe, but leaves it in the Abdomen; and he shuts it with a tent of lint P, that he may again let forth the water afterwards. Hydropical persons perforated, must be kept most diligently, that the band may not be loosed, they not being sensible of it, and the pipe fall out, and so the water run all out at one time, and kill the Patient, for so this only remedy of so great a disease may be disgraced. Following *Fabritius, An. 1625.* on the 7. day of *August*, I opened the Abdomen of a certain noble Virgin at Ulma, who was sick of an Ascites, Anasarca, and Tympany, and she lived one year and a half very sound after this perforation; afterwards she died sick only of a perfect Tympany.

Fig. IV. represents the incision of a Fistula of the Thorax, which was done suddenly and almost in a moment, with a Syringotomus, which at one end hath an edge Q, Table XIV. Figure I. and the point of it was wrapt about with a small button of wax R, that when it was thrust in, it might not rend the flesh; then it is thrust into the Fistula, and when it comes to the bottom of it, it is forced through the skin and flesh above, with the right hand; so that the bottom of wax remaining in the ulcer, the point of the knife may come forth by the hole made, which being laid hold on by the fingers of the left hand, the distance between both holes is cut asunder at one stroke. It shews also a wound of the Abdomen dilated to thrust in the intestines, which is the next Figure. according to the opinion of *Galen, L. 6. Meth. Med. cap. 4.* is stitched, namely the Peritonæum with the muscles, and the muscles again with the Peritonæum.

Fig. V. shews the manner how the lips of the wound of the Abdomen are brought to touch one the other; and being so brought, are kept so by stitching or clasps. The intestines being put in again, the Assistant shall take hold of the lips of the wound with his hands, and he shall draw forth so great a part of the wound to the Chyrurgian, as is necessary to be stitched; but he sticks in a needle, (i) which draws after it a twisted flaxen thread, from the lower and outward parts, (u) inwardly through the skin, (a) and the muscles (b) that lie under it, as far as the Peritonæum, (c) after this the Peritonæum being not touched (c) of this part, he thrusts the needle through the Peritonæum of the other part, and also through the muscles, from the inward parts to the outward; then taking forth the needle, he ties both ends of the thread, and makes a point; then (z) leaving a space of a fingers breadth, he thrusts

thrusts the needle through the Abdomen of the same part, from the upward and outward parts (x) inwardly, not touching the Peritonæum; after that he thrusts the needle through the Peritonæum, the muscles, and the skin, from the inward parts outward, and he makes a point, and so he goes forward, sometimes perforating, sometimes skipping over the Peritonæum, untill there are made so many stitches as are necessary in sewing the Abdomen. This way of stitching is also to be observed, when the Abdomen, after the Cæsarian birth, is to be united with clasps.

Fig. VI. is a truss, or a stay for a Hernia, to be applied to the left groin of people of full growth. The girdle of the truss (a) and the under band (b) perforated with many holes, that it may be shut and opened again, it is made of thin leather, or double cotton linnen; the truss (y) is filled with goats hair, that it may be pretty hard, and may hinder the falling forth of the intestines or the caule; let it also have a fastning before, least the under band passing through may waver from it.

Fig. VII. is a truss to be applied to children, and it is made of the same matter that the former is; but it differs in this, because the girdle of this is not to be fastned on the side, nor the under ligature before; but both must be fastned behind, that children may not so easily untie it.

Fig. VIII. represents a truss applied to the left groin. All things being put in again that ought to be put in, and a convenient cerat being applied upon the part affected, the target, or cushion, must be stuf with goats hair, or wool, two or three fingers length, and applied; which that it may stick fast, and may not easily be removed from its place, it is pressed on with a girdle before to the groin, which comes about the loins, and is fastned on at the side, (a) and also with the broader under band, (b) (which being behind fastned to the girdle, and drawn downwards, and so coming under the twist is turned up again) passing by the middle of the cushion, and that knitting before, which is therefore joined to the cushion, that the under band may not flag from it, and passing through, it is bound streight to the girdle before.

The way to cure a Rupture of the Intestine, very often proved by me.

THis consists in three things: 1. Putting back again of the intestine within the Abdomen. - 2. By keeping of it so put back, that it may not again, by the groins, fall into the scrotum. 3. By fastning the Peritonæum relaxed, or healing of it if it be broken. The Chyrurgian who is experienced, shall most diligently consider, before he put in the intestine, whether the rupture be great or small? whether it be new, or fallen to inflammation? and also whether the intestine be yet lank, or else filled up with some matter?

If the rupture be small and new, and the intestine be lank, it will be easily reduced; if the Patient be laid on his back in his bed, with his head somewhat low, and his feet lifted up; for thus the intestines falling to the midriff, they draw after them that which descended to the Scrotum. †

But if the rupture be great and new, the Chyrurgian must, with his fingers, handle the intestine that is stretched forth with no matter; and he must, by degrees, softly turn it about, the Patient's head being first laid somewhat low, so long till by little and little it go in again within the Abdomen. And if the Chyrurgian be weary with his hand, he ought to have an able Assistant, well informed in this operation, who may help him, and may likewise handle the intestine.

When inflammation is joined with a rupture, which is known by pain, heat, and a Feaver, or winds, the sign whereof are rumbling; and pain extending without any weight; or excrements which are known by not going to stool in two or three daies, by great hardness of the scrotum, and most grievous pain; then we must desist from reducing the intestine, untill such time as the inflammation is over, the excrements are gone forth and the winds dispersed. † This following Cataplasm is proper against the inflammation:

Take Barley meal, one pound.

Wheat bran, half a pound.

Compleat oil of Roses, three ounces.

Red Wine what is sufficient, mingle them.

This

This being laied hot on the scrotum and groin will very much digest, moderately repells the humours, and most effectually strengthens the parts. If the inflammation be not gone after 24. hours, the Cataplasin must be so often renewed and applied, as shall seem needfull to cure the inflammation. When the Cataplasin is over dried by the vehement heat, and so is hard to come off, we must pour on Wine and Oil hot. Also the place inflamed, with the like good success, is fomented with a hot lixivium, as *Fallopins* appoints, made with Beech ashes boiled in it: Take therefore two bundles of raw thread (*which hath not yet lost the digesting quality of it by Fullers washing*) put them into the kettle, and boil them with half a handfull of Cummin-seeds in a sharp lixivium; then take one of the bundles out, and crush it out between two dishes, and lay it broad very hot about the scrotum, as hot as the Patient can suffer it; when it grows luke warm take it away, and lay on the other; and do this, changing them so often, untill the inflammation be quite gone.

When great pain accompanies the inflammation, then add to the Cataplasin or fomentation, some, or a great part of oil of Roses.

If with inflammation there be excrements join'd, which hinder the intestine from being put back to its place; this is truly a most desperate case. yet (*omitting Purgatives given by the mouth, which else would cause a greater flux of humours to the part affected, and hasten the Patients death, as Fallopius testifieth*) we must try to bring forth the excrements with baths or fomentations that loosen distention, and by linitive Clysters cast in in a moderate quantity. In the mean time we must prevent generation of excrements, giving to the sick meats of good juice, and few excrements, such as are thin flesh broth, rene eggs and such like.

Also very often winds, without inflammation, fill the intestine; in which case there is nothing better than a fomentation that is made of a decoction of a sharp lixivium, with Cummin-seeds and raw thread, and by adding a small quantity of strong Mallage wine to it. The inflammation being cured, and the excrements voided forth, and the winds dispersed, let the intestine be thrust back into its proper place, gently, by little and little, thrusting it in with the fingers. After the intestine is thrust in, by reason of the relaxation of the Peritonæum, slip into the Scrotum, lay on a binding plaister commended by *Hieronymus Fabricius ab Aquapend.* which is this:

M 3

Take

Take Bole Armeniac,
 Dragons blood,
 Mastick,
 Sarcocolla, of each 1 dram.
 Horse-tongue,
 Powder of Tyles, of each 3 drams.
 Rosin of the Pine-tree, 1 ounce and a half.
 The white of an Egg,
 Wax, of each alike what may be sufficient to make a
 plaister.

Spread this upon a thin soft piece of leather, as great as the part affected, that it may not be much too big, and lay it on; first shaving away the hairs from the groin; and never renew it unless it will no longer stick to the skin. The plaister being laied on, lay over it the Truss, Figure VI. that it may bind close to the groin, Figure IX. that it may press upon the hole of the Peritonæum, through which the intestines fall down.

If by reason of the breaking of the Peritonæum, the intestines fall down into the Scrotum, we must mingle glutinatives with astringents:

Take the binding Cerate of *Hierom. Fabritius ab Aqua-pendente*,

Emplastrum Apostolicum Nicolai, of each equal parts.

Mingle them and temper them with Oil of Mastick.

Spread this on leather, and with a Truss lay it to the groin, to keep the intestine in its place, and to heal the breach through which the intestine finds a way to the Scrotum. For the principal cure consists in outward remedies, and an exquisite Truss to bind it.

When these things do not help, there is need to purge the whole Body, especially from watry and phlegmatick humours, which hinder the consolidation or binding together of the Peritonæum broken or dilated, which of it self is hard to cure: Adde to this, that since it is necessary not only to use binding remedies outwardly, but also inwardly, if omitting the prescribing of universals, the body should abound with excrementitious humours, the Patient, by the obstruction of the Bowels arising from thence, might fall into Feavers or other diseases, then we must purge with gentle remedies. Premising universals we must flie to binding remedies both internal and external:

I hold this following Electuary to be one of the principal thing^s to be taken:

Take conserve of Comfry, 2 ounces,
Of old Roses, 1 ounce.
Citron pills candied,
Orange pills candied, of each half an ounce.
Powder of the herb Thorow wax.
Rupture wort,
Adder tongue,
Great Comfry root, of each 1 dram and a half.
Plantain seed, 4 scruples.
Cichory,
Fennel, of each 1 dram.
Red Coral prepared, 1 dram and a half.
Pearls prepared, half a dram.
The stone Chrysocola prepared, 1 scruple.
Syrup of Myrtils or Coral, what may be sufficient.
Mingle them and make an Electuary.

Whereof the Patient, four hours before dinner, and three before supper, shall swallow down the quantity of a Walnut, and drink after it a glass of sharp red wine, or white, wherein this bag hath been infused:

Take Strawberry leaves,
Middle Comfry,
Perwinkle,
Horse tail,
Adders tongue,
Thorow wax, of each 1 handfull.
Roots of Solomons seal, 1 ounce and a half.
Great Comfry, 1 ounce.
Plantain seed, half an ounce.
Cichory, 3 drams.
Fennel seed, 2 drams.
Cummin seed, 1 dram.

Cut and bruise them and mingle them for a bag, which must be infused in three measures of white wine. If by reason of a Fever wine is not allowed alone, the wine must be mingled with water, and altered with the leaves of Alchimilla. Also for Children this following powder is excellent.

M 4

Take

Take great Comfry,

Hearbs, Adders tongue,

Thorow wax,

Rupture wort, of each one dram.

Plantain-seed four scruples.

Fennel,

Cichory, of each one dram.

Red Coral prepared, two scruples.

Pearls prepared, one scruple.

Stone Chrysocola prepared, half a scruple.

Sugar of Roses in tables, what may suffice to give it a pleasant taste, mingle them and make a powder, whereof morning and evening give a small spoonfull in broth.

The Infant having taken the powder, shall drink of this mixture, or of this following decoction.

Take Plantain water,

Strawberry water, of each six ounces, mingle them.

And if you please you may sweeten it with Sugar, or

Take great Comfry,

Hearb Perwinkle,

Bugle,

Plantain-seed, of each two drams.

Cut them, and mingle them in a paper for a decoction.

Amongst the use of inward remedies, a convenient plaister also under a fit truss, must be applied to the groin; and as oft as there is need to renew it, the place affected (whilest the Patient lieth on his back in his bed) must be fomented with the following decoction.

Take roots of great Comfry,

Tormentil, of each one ounce and a half.

Hearb Perwinkle,

Strawberries,

Adder's tongue,

Horse tongue,

Rupture wort,

Thorow wax, of each one handful.

Red Rose leaves,

Wilde Pomegranate flowers, of each half a handful.

Pomegranate pills,

Acorn cups,

Seeds

Seeds of Sumach, of each two drams.

Cut them and boil them in Red wine.

After this lay on a new plaister, and let it stay on until it will no longer stick to the skin; and this changing of the plaister, and formenting of the part affected, must be so often renewed, until the dilatation, or rupture of the Peritonæum be bound up, and glewed fast together again.

But all these remedies, both outward and inward, will do no good, if there be not a right diet observed; wherefore the sick must avoid all sweet meats, windy, and of ill juice, of which number are all raw herbs, pulse, summer-fruits, milk meats, and such like; he must use to eat bread well baked, with Aniseed or Cumminseed in it; he must also feed on dry meats to bind, and clammy to heal; for the first purpose, Thrushes, Blackbirds, and Partridges are good; and for the second, Calves flesh, Gees, and Ducks feet and wings, rather boiled then roasted. His ordinary drink must be Wine, not sweet nor white, but red and astringent, or at least of a taste between both. *But meat and drink taken in small quantity, doth much conduce to the timely recovery of his health.* The sick lying on his back, with both his head and feet raised, must keep his bed at least forty daies, and must take great care of his truss, and must never rise without it, be the time never so short; much less must he go to stool, lest the intestines falling down, should open again that which is newly bound and healed. Also care must be had, that the belly be daily loose, least when the excrements are hard, and are voided by straining, that straining should do very much mischief. To loosen the belly that is too much bound, Prunes of *Ausburg* are very good, if four or five of them be eaten an hour before meals. And it will do no hurt, if once a week the superfluities of the first region be purged forth with Pills of Aloes, prescribed by *Hierom Fabrit. ab Aquap.* the weight of a scruple taken one hour before supper, or by a Clyster cast in in the evening, which if it be made of a decoction loosning and cooling, Hony of Roses, Lenitivum, and Oyl of Chamomil, it will keep the belly loose for many daies after; when forty days are past, the sick may rise; but let him continue his plaister and truss, untill they may be safely taken off. Though none of those that geld men, think that such as have ruptures can ever be cured, without that most dangerous cutting forth of the Testicle, (Table XL. Figure IX, &c.) but that there will be a fear left that it may come again; yet I have cured multitudes, whose

whose Surnames I willingly conceal, in a long time, and with great care by the said remedies; and restored them to their former health by using a good Diet, and a good Truss: But such as I could not cure perfectly, by reason of the greatness of the disease, or the long continuance of it; yet I preserved them so, that the disease did not increase upon them.

Fig. IX. shews how the urine suppressed is drawn forth by a Catheter; which manual operation is easie to a Physitian that is skilfull; and on the other side hard and dangerous enough to one that is ignorant. *Celsus* describes this L. 7. C. 26. but sometimes we are constrained to attempt to bring forth the urine by manual operation, when the sick cannot make water, or else by age the passage of it is fallen down, or because the stone, or some clotted blood are in the way. Also oftentimes a small inflammation, or a Caruncle bred in the urinary passage, will not suffer it to be made naturally. And this is not only necessary for men, but sometimes also for women; wherefore brazen, or rather silver, pipes are made, which they call Catheters; which that they may serve for all great and small bodies, the Physitian must have three ready for men, and two for women. For men the greatest is fifteen inches, the middle size is twelve, and the least nine inches: Of those for women the greatest is nine inches, and the least six. They must be crooked; namely, those for women a little, but for men much more, and they must be all very smooth, and neither too thick nor too thin. Then the Patient must be placed on his back upon a low seat or a bed; and the Physitian, on the right side, with his left hand must hold the man's yard; and with his right hand he must gently thrust into the urinary passage a silver pipe E anointed with oil; and when it comes to the neck of the bladder, he must incline the Catheter with the yard, and so thrust it into the bladder; and when the water is made by it, take it forth again. *Thus far Celsus.*—In this manual operation great care must be had, lest in thrusting in of a silver pipe, the fleshy folding be not hurt which shuts the orifices of the seminal vessels, that end about the urinary passage; which is known by the difficulty of thrusting it in, the pain, and blood coming forth. For when these signs appear the Catheter must be drawn back a little, and thrust in again gently, untill, not touching the folding, it go into the bladder, and the urine come forth by it. Others bind to the
the

the silver wier, that fits the hollow of the pipe, a lock of cotton, and they thrust it into the cavity of the Catheter, and they force that, with the pipe, into the bladder; when the Catheter comes into the bladder, they draw the wier out of the Catheter, with the wool at the end of it; and so they draw forth the urine, as by a syringe. But neither the cotton nor wier is necessary. Nor the cotton because the urine comes freely forth by the Catheter that hath holes on the sides: Nor the wier because, for the reason now mentioned, it hinders more than it profits: For whilest they draw the wier out of the pipe, oftentimes they pull forth the pipe also, with more difficulty to be thrust in again, when the urine is suppressed by reason of inflammation of the bladder, it is not without danger to thrust in the Catheter; for the neck being torn, the inflammation is augmented; and when that ceaseth, there follows almost an incurable voiding of water, which the sick cannot hold. Wherefore it is better with a small wax candle, Table XIII. Figure IX somewhat bended, and anointed with common oil, to attempt manual operation at first, than to exasperate the disease by the use of the Catheter. Also where there is difficulty of making water, which comes by reason of the kidneys in fault, the Catheter and wax candle are used in vain, because the urine is not contained in the bladder. †

The XL Table.

Of the placing of the sick to try and take forth a stone out of the bladder and urinary passage; the abating of the heat of urine by manual operation; the extirpation of a Caruncle bred preternaturally in the passage of the urine; of the perforation of the yard; of binding venerious warts upon the Praputium; of the cure of Hernias with the loss of the Testicle; of incision made upon the Hymen that is whole, of opening the Matrix that is shut, and of the keeping the womb slipt out beyond the Abdomen, and put in again, in its natural place.

FIG. I. shews the placing of the sick troubled with the stone; for in this case they search for the stone of the bladder, thrust
ing

ing the Catheter A through the conduit of the yard, and putting the forefinger into the fundament.

Fig. II. shews, besides the way of searching for the stone, the incision of the Perinæum B, upon the Director C, thrust into the bladder, performed by the pen-knife (Table II. Figure II.) Incision being made the Stone-cutter draws out the Directors, and he thrusts in the Catheter by the wound made in the Perinæum, that the Dilator, or Speculum Vesicæ above the pipe, may come into the bladder without any hurt. The Dilator being applied he draws forth the Catheter, he dilates the neck of the bladder, and laying hold of the stone with a fit instrument he pulls it out, &c. Read *Ambros. Paræus lib. 17.* from chap. 35 to 48. concerning the drawing out of a stone: and that exquisite Treaty of *Guill. Fabrit. Hildan.* of cutting for the stone in the bladder.

Fig. III. a stone is taken forth of the urinary passage without cutting; because if the stone came out of a more narrow place; namely out of the neck and orifice of the bladder, it will much more easily be taken out of a larger place, as is the conduit of the yard. I take the Probe of *Aquapendens*, which at the end is made hollow like a spoon D, as an ear picker, this I thrust into the passage, so that it may pass beyond the small stone E, and may in a manner comprehend it in its hollow place; then through the pin of the Probe that is hollow, I pour in oil of sweet Almonds into the urinary passage, and I draw the Probe gently to me, for so the stone is by degrees drawn forth; both pressing of it with the fingers, and drawing it with the Probe; see Table XIV. Figure VIII. Also I have often observed such stones that are fallen into the urinary passage, to come forth of themselves, without cutting or help of the spoon; if the Patient sit frequently in an emollient bath, and take medicaments that are moderate to break the stone, or will suffer them to be dropped into the conduit of the urine.

Fig. IV. doth assuage the heat of urine, which in a virulent Gonorrhæa is so vehement when a man makes water, that the Patients had rather die than make water. When therefore such heat and pain is felt in making water, that it cannot be assuaged by any medicaments taken at the mouth, or poured in, the Patient shall put a silver most smooth pipe into the passage of the yard, tied by threads (F) which he must hold in his hand, left

least the pipe by force of the urine coming forth; should be driven out again from the urinary passage; but that it may stay fast in, until the urine run forth through it without pain, not so much as touching the conduit of the yard.

Fig. V. Oftentimes a caruncle is bred in the urinary passage from an ulcer, and it sometimes grows so great, that it stops the water. This is taken away and cured by manual operation, and fit medicaments that have a corroding power; but that no other parts but only the caruncle in the passage may be eaten away, or the water should wash away the medicaments that are applied, *Hierom. Fabrit. ab Aquapend.* invented an instrument, by means whereof nothing but the caruncle is eaten off, and also it hinders that the medicament applied to the caruncle, is not washed away by the water that is frequently made. For a pipe (G) is made of linnen, smeared over with white wax, (in length a fingers breadth, and so broad that it may be equal to the silver Catheter I) which hath a long thread hanging at it. This pipe, first smeared without with a convenient medicament, as for example;

Take Hony calcined to ashes,
Tutty prepared,
Fresh Butter washt in Planten water,
Turpentine so washt also,
Yellow wax, of each half an ounce,
Burnt Allum, half a dram.

Mingle them and make a Liniment; which, as I have found by common experience, will consume the caruncles of the urinary passage without pain; or excoriation of the parts that are found. Some highly commend the experiment of *Rochus Cervierus*:

Take powder of quick Sulphur,
Mercury precipitate,
Verdigreas,
Crud Antimony, of each three drams,
White Wax, one ounce.

Mingle them according to art in a leaden Mortar, to the form of an unguent. The pipe being anointed with one of these medicaments, it must be fitted to the wier H, that comes forth beyond the silver pipe; and together with the silver pipe and wier, it must be thrust into the urinary passage, until it meet with the caruncle; and when it is come to the place of the caruncle, the silver pipe with its wier must be drawn back; but the pipe made of linnen, smeared over with wax and put in, must be left in the passage,

passage, that the urine may come forth by it; and this also hinders, that the medicament applied to the caruncle cannot be washed away by the urine.

Fig. VI. Sometimes it happens that infants are born without any hole in the top of their yard to make water by; this must be presently cured with a sharp knife that hath a narrow point. The sick must be laid on his back, and the yard must be taken hold on near to the glans with the left hand, and with the knife held in the right hand, the hole that is shut must be opened; when this is done, a tent of lead must be thrust into the hole, that is small and solid, and anointed with some healing medicament; which must be taken forth when the sick makes water, and then thrust in again, and this for three or four daies, until the lips of the hole be skinned. But if children be born with a very narrow hole in the glans, that must be presently enlarged by thrusting in a small tent, (made of the pith of Elder, and anointed with unguent of Roses) that it may swell by the moisture it drinks in, and being swoln may enlarge the hole.

Fig. VII. shews pocky excrescences of flesh in the glans and præputium, and the way to cure them, which is done most commodiously by binding; for since that these caruncles have a narrow basis, they are tied with a single small red coloured silk thread, and they will fall off in two daies; sometimes they are touched most profitably with Oil of Antimony or Logadorum; sometimes they are as well laid hold on with the pullers, and are cut off with a pen-knife; after that the place is cauterized with a very red hot iron, that the blood may not taint the parts near unto it.

Fig. VIII, IX, X, XI, XII, XIII, XIV. represent a most horrible Chyrurgery, wherewith at *Nursum*, in my time, the most famous Gelders of Italy did cure Hernia's of the Intestines. The sick lies on his back, and is bound upon a table; then the whole dilatation in the groin is marked obliquely with ink; the Assistant, at the bottom of the Abdomen, presses together the Intestines, that they may not come forth; then the Chyrurgian, with a crooked knife, making an oblique incision of the skin, Figure VIII. (that the progress of the Peritonæum may be seen, Figure IX.) he cuts the Peritonæum with the same knife, Figure X. and by the hole Figure XI. he forces the Testicle out upwards; after this with his fore finger he pulls away all the membranes, and separates them from the Scrotum; and first of all he draws forth the sheath membrane dilated, Figure XII. * and the testicle with it; then

then he laies hold of the spermatick vessels, and the sheath coat, with a convenient pair of pincers, and he fastens them together; then he cuts forth the testicle above the suture with a knife, and casts that away; (others tie the spermatick vessels and the coat in two places, and laying hold of the ends of the lower thread, they cut forth the distance with a pair of cizers, and cast away the testicle) but he cauterizes with a red hot iron all the vessels that bleed, and puts them in, leaving a long thread hanging without; and lastly he puts in an iron instrument (L, Figure XIV.) by the hole of the groin, which hath a ball of wax at the point of it, as far as the bottom of the Scrotum, that he may make a hole through it to purge forth the matter, which daily falls into the Scrotum from the wound in the groin; and he keeps the hole open by a tent put into it, untill such time as the wound in the groin be cured.

Fig. XV. represents a membrane going overthwart the womans privities within, which the Antients took for hymen.

Fig. XVI. The membrane called hymen, which hinders copulation, but it is perforated above, to let forth the menstruall blood, with a crooked knife (Table XII. Figure II. to whose point a little button of wax is fastned) it is cut asunder, that the woman may be made most fit for man. And if that little skin do alwaies cover the sheath of the matrix, *Paulus lib. 6. cap. 27.* cuts it with *Celsus* his Spatha, Table II. Figure I. —

Fig. XVII. Teaches how *Hierom. Fabrit. ab Aquapend.* where the lips of the womb cleave together, uses manual operation according to *Paulus*: He laies the woman on her back, (in this manual operation, and that of the precedent Figure) so that her legs are drawn up as high as her belly, and her thighs before stradling wide; he also puts her arms under her hams, and binds them to her neck with fit ligature; then with a knife made to cut fistulas, either with a Syringotomus sharp at one end, (Table XIV. Figure I) or with a Woodcocks bill, Table XII. Figure I, II, III, and V. he cuts the lips that grow together, being first marked with ink all the length of them. The lips being parted, and the flux of blood stopt, a leaden pipe is anointed with some healing medicament, and thrust into the matrix, till the cure be perfected, that the lips may not grow together again.

Fig. XVIII. treats of the matrix falling forth without the Abdomen, which thing happens to women, when the membranous ligaments of the womb are either stretched or broken. — The cure of
of

of this disease requires three things; the placing again of the womb, fallen forth, in its proper place; then to keep it there in its place; and lastly, to knit or consolidate the ligaments.

Before we repose the womb in its place again, we must consider whether the falling forth of the Matrix be single, or whether there be not inflammation or a cold humour join'd with it; for when these appear we must not attempt to put it back to its place, untill such time as the diseases be gone. A Cataplasme or lump of raw flax boiled in a sharp lixivium, and wrung forth, will stop the inflammation; concerning which see the cure of a rupture of the intestines, Table XXXIX. Figure VIII. A fomentation of the decoction of Mallows, Marsh-mallows, Camomil flowers, &c. will dissolve a cold tumour. The said tumours being cured, and the belly excrements voided by Clyster, and water being made (that the Matrix may be free from all compression) the Chyrurgian, or some experienced Midwife, must lay the woman on her back, so that her hips may lie higher, and her hams may be bended inward, and her legs may lie stradling; then he must take the Candle O (which must have a basis) made of Wax and Assa fætida, and is as thick as the sheath of the Matrix; and with this, not using any violence, he must thrust inward all that which fell down, untill the whole lump be reduced into its place.

This being done the Patient shall fasten the candle with a three double cloath dipped in red wine, and pressed forth again, and with the band, Table XLI. Figure III. for eight or nine daies let her lie with her legs stretched forth and joined close together, so that one may lie upon the other; let her bind an Eagle stone to her arm, and let her put sweet smelling things to her nostrils, unless she be subject to suffocation of the womb. The Matrix being put back into its place, which fell down by relaxation of the ligaments, the body must be purged from watry and phlegmatick humours; and (after the applying of cupping glasses, without scarification, with a great flame, under the navil and kidneys, and amongst the use of inward astringent medicaments) upon the region of the Matrix, and near the groins an astringent plaister must be laid; and the ring of Box P must be thrust into the sheath, and there left untill the cure be perfect. The woman must every third or fourth day remove the plaister, and shall thrust the pipe or Merrenchytes, Table XIII. Figure III. into the sheath of the womb; then, for an hours space, let her

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fit in a bath made of moderate astringents (for if they be too strong they stop the Tears) And let her lay on a new plaister. She must observe a due regiment of things not natural, which was prescribed to those that have Hernias in the quoted place. To women not yet well purged, after child birth, the use of astringents is most dangerous. When the membranous ligaments of the Matrix are broken, we must mingle, with an astringent cerat, Emplastrum Nicolai or some other healing plaister.

The XLI Table.

Of the shortning of the Clitoris or womans yard unprofitably augmented; of Metrenchyta, Speculum ani, and Matricis; of drawing forth the dead child, and putting back again of the fundament fallen down.

FIG. I. teacheth how Hierom. Fabritius ab Aquapendente, with an instrument made for a Polypus, cuts off the unprofitable increasng of a Clitoris, which is a common disease amongst the Egyptians and Arabians. A shews the Clitoris laied hold of with the pincers: B shews the body of the Clitoris cut off, and placed beyond the pincers.

Fig: II. represents a syringe for the Matrix, that is fastned to the syringe, Table XIII. Figure I. that it may be put into the hollow Matrix, to inject by it such liquors as are convenient.

Fig. III. shews the Trufs which keeps on the medicaments laid upon the outward orifice of the Matrix.

Fig. IV. teacheth how to use the Speculum Matricis, pictured Table XVI. Figure IV. which Paulus lib. 6. cap. 73. describes in these words following: Let the woman be placed on her back in a chair, drawing up her knees to the top of her belly, but her thighs stradling; let her arms come below her hams, and with fit bands let them be bound to her neck. But the Chyrurgian, sitting on the right side, shall search with a proving instrument, called a perspective, fit for the age of the Patient; and by his Probe he shal measure the depth of the Womans Matrix, lest if the pipe of the Dioptra be too long, the Matrix

might be pressed by it. And if the pipe of the perspective be longer than the hollow of the matrix, linnen clothes folded must be put into the brims of the privy parts, that the Dioptra may be placed upon them; you must warm the pipe, anointing it with convenient oil, and so gently thrust it in, having a screw at the upper end of it; the Dioptra must be held by the Chyrurgian, and the screw must be turned about softly without violence by the Assistant, that thereby the plates of the pipe being drawn asunder, the hollow matrix may be laid open, to find out that which requires manual operation.

Fig. V. The dead child is drawn forth with crooks, (namely, when the child, by reason of its preternatural situation, cannot be driven forth with Horse-stones prepared, which *Horatius Augenus* commends to us, or by drinking the milk of another woman) Table XVII. Figure IV. pictured out of *Andreas à Cruce*, and put into both cavities of the eyes; if it cannot be taken forth whole, it must be cut with the knife, (Table II. Figure II.) and observing what must be observed; it must be taken forth by pieces. See more in *Hierom. Fabrit. ab Aquapend.*

Fig. VI. The ars gut of children newly born being shut, is perforated with a lancer; After the operation, you must apply such things as were prescribed in the perforation of the yard and the matrix.

Fig. VII. Shews the repofing again of the right gut fallen down; it must be done gently, and attempted with the fingers of the Chyrurgian; (but others commend the Patients fingers) with a four double linnen cloth D, and with a band to hold on the medicaments, and to keep the intestine in its proper place.

Fig. VIII. The right gut is looked into with a dioptra, Table XVII. Figure II. made something hot, and anointed with oyl, that it may be made slippery, to search out the quality of the Emrhods. Also we know exactly the condition of ulcers, by putting a tent into the fundament, and leaving it there an whole day, and then pulling it forth again. — The ulcers of the right gut being seen, are most safely cured with a pipe (having a long handle, and perforated on the side, Table XIV. Figure I.) covered with a linnen cloth wet in sharp wine, and pressed forth again, with a hole in it; (for a solid pipe, Table XVI. Figure I. is only smeared with the white of an egg) and thrust into the fundament, it must three or four times receive the iron wier pin made very red hot, Table XVI. Figure IV. and Table XXXVII. Figure I. as we said before for the manual operation of ozæna. The operation being ended,

ended, the place affected must be dressed with medicaments poured in, and laid to it, untill it be perfectly cured.

The XLII Table.

Of Incision for Fistulaes; cure of the Emrods; application of Enterenhyta; and of two Monsters.

THe fistulaes of the fundament are of two sorts; some rise from an ulcer of the right intestine, which hath divers causes, as salt flegm, sharp choler, and the French Pox, (especially in hotter Countries) which by corroding produce fistulaes in the fundament; others rise from some knot (by riding or by some fall) breeding outwardly about the fundament, and coming to suppuration; and if the quitter of it cannot find a way out, it will make a deep hole.

The Antients either eat away the right intestine, and withal they perforate the four common covers, that so the corrupted matter, or rather bloody atter may come forth outwardly by the skin, or else they rest about the musculous parts, and such as are next the skin. Also the latter Chyrurgians perforate the intestine, or else they proceed only to the outward coat of the right intestine.

Aquapend. L. 3. Pentateuch cap 12. doth exactly handle the signs of the fistulaes spoken of. I have seen all these fistulaes cut with iron instruments neatly, and happily cured, by the most excellent Physitian and Chyrurgian, *Adrian Spigelius*, my most honoured Master (whose Anatomical Preparator I was, and whose Assistant I was, in performing manual operations, for ten years) for seven years, namely from the year 1616, to the year of our Lord 1623. I practised in the most eminent and famous University of *Padua*, which is held to be almost the principal of all Universities, not only in *Italy*, but also in *Europe* and elsewhere, by reason of the splendor of most famous Doctors, the authority of the most antient Studies, and the rare Monuments of all Learning and all Vertues. Nor are there wanting to me men of great name, who with great courage following the wars, were troubled with fistulaes in the fundament coming from the French Pox, these I cured in my own Country, relying upon the frequent experience of my Master, by the way following.

TABVLA XLII



The cure of Fistulaes in the Fundament that penetrate.

When I undertake to cure a fistula, proceeding either from an ulcer of the right intestine, or from some knot growing on the buttocks, and penetrating, and not yeelding to any medicaments, I draw forth a silver probe, (Figure I. letter *b*) having at both ends two round knots, (*c, d*) and I bend it as need requires: To the end hereof (*d*) and to the round button of the Syringotomus (*e*) (Table XIV. Figure III.) I tie a double flaxen thread (*f*.) These things being rightly performed, I gently thrust in the probe into the orifice of the pipe (*g*) and I draw that, and the double thread, and the round end of the knife, through the orifice of the fundament (*a*) as it is apparently deciphered Figure II. letters *h* and *i*. After this I take in my left hand that part of the instrument called Syringotomus that cuts, and is marked with (*h*) but in my right hand I take the part of it (*i*) and so drawing and driving up and down the instrument, at one stroak, that the sick may not be long tormented with pain, I cut it quite through. This being cut, the blood must be stopt, inflammation hindred, and the callous must be consumed with this medicament, (take Arsenick prepared, half a dram, Hony of Roses, half an ounce, mingle them) the new wound must be filled with flesh and skinned. By this means, without any actual cautery, (which others praise exceedingly to consume hard callous substance in fistulaes) fistulaes that penetrate are most easily and most safely cured.

The cure of Fistulaes of the Fundament that do not penetrate.

If there happen to be a fistula in the fundament, which had its original from an ulcer of the right intestine, and yet hath not perforated the common covers: I take in my hand the probe (*k*) which at one end hath a round head, and a hole to put a silken thread through (*l*) at the other end, for to make incision at the bottom of the fistula, it is sharp, like to a needle with three points, to the top end whereof you must fasten a little wax pellet (*m*) whereby the top of the instrument findes more free access into the bottom of the fistula, and there is no fear that it may hit against the sides of it, to hinder the operation and cause pain; wherefore having prepared my probe, with the wax put on it, I search

for the bottom of the ulcer of the intestine, and when I have found it, by thrusting the probe hard I perforate the skin, (Fig. III.) and I draw it all through the fistula, the silken thread hanging down at both holes (o) Figure V. when the hollow place is perforated, *Cornel. Celsus lib. 7. cap. 4. de ani fistulis*, and others that follow him, bind both ends of the twisted thread, (yet one of silk, that were single and of a red colour, by reason of its smallness and tincture, would sooner cut it and eat it away) and they twist it with an overthwart small stick (n Figure V.) very streight, and so they cut all the fistula with a thread; yet because the incision and cure of the whole fistula by a thread (Figure V.) proceeds too slowly, and there is continual pain with it, (because every operation ought to be done quickly and sweetly) *Hierom Fabrit. ab Aquapend.* deservedly rejects it, and saith there is no place for this way, but only for fearful people who are afraid of the iron instrument, wherefore I do so demean my self. The fistula being perforated with a probe, and with holes (by the help of a silken thread streight twisted with a stick for two daies) for the use of the Syringotomus, (Table XIV. Figure II.) which at one end hath a thicker head sufficiently dilated; I remove the stick (n) and the silk, (Figure V.) and cut the fistula after that fashion as I have described it before Fig. I. and II. This latter way of curing fistulaes by a thread and edge of the knife, joins into one the opinions of *Celsus* and the latter Chyrurgians; and by experience, which is a most faithful witness, it is better then simple incision performed by a thread, and more tolerable, but especially when the orifices are too far asunder, by reason of the length of the fistula. If this operation also seem to be too slow, the Chyrurgian shall satisfy all conditions of good operation, if he presently cut the fistula with that knife called Syringotomus, which cuts at that end where it hath a little button besides. I set forth this instrument before, Table XIV. Figure I. and I applied it, Table XXIX. Figure III. If such fistulaes grow from outward knots, and such as impostumate, they require the same cure, proceeding as I said Figure IV. Note, the sphincter muscle, according to *Hippocrates de Hæmorrh.* may be safely cut any way, without any hurt done to its functions, if only one eighth part of it be left untouched; otherwise there would follow an excretion of the excrements against a mans will, and at last death it self. — Fistulaes in old people, that have run long, are not safely cured, unless an issue be made before they be healed up, three or four fingers above the knees, on the inside, to evacuate the matter that

that is daily collected. ¶ The Emrods that require manual operations, are either external or internal, which first of all the most skilful in Anatomy, *Hierom. Fabrit. ab Aquapend.* learnedly demonstrated in *operat. Chyrurgic. titulo de Hemorrhod.*

These appear at first sight, but those, unless you press the Abdomen, and hold your breath, or go to stool, cannot be seen: If they need manual operation, they both do either swell, or run too much. ¶

The cure of the Emrods that swell, by manual operation.

Sometimes pain, or inflammation, is joined with the swelling of the Emrods; and then the cure is performed rather by medicaments internall and externall, namely, with the unguent of wilde Flax of *Herst. Lib. 4. Observ. 42.* or other unguents, (the basis whereof is *Scrophalaria*, which onely cleansed from filth, and hanged about the neck, and worn next the naked body, doth almost miraculously assuage the pains of the Emrods. See *Tabern. lib. 2. fol. 431.* and *Craton. cons. 207.*) rather then to exasperate this Disease by any manuell operation whatsoever. If they swell much, without pain or inflammation, and lie secret, I take the broad iron tool (*p*) (fetched out of the nineteenth Table) and when it is very red hot, I so burn the Emrods, yet not touching them, that is, that they may onely feel the heat of the fire, as the Patient can well endure it: If the Patient, as oftentimes it happens, fear manual operation, with good success also I set on the Leeches prepared, and I draw forth plenty of blood; after that I put up into the fundament *linimentum simplex* with a tent; and I apply a new sponge, wet in black sharp wine, wherein astringents have been boiled, and press it forth again, by this means to corroborate the part. ¶

Hippocrates, for the said manual operation, requireth an iron instrument with a round head, such an one as that is, which is lively set forth Table XIX. Figure V. and in the following Figure, letter *q* is the mark for it; with this he drieth them all up, one after another; yet I think, that a broad head is more effectual here, because the operation is sooner ended with this; but that of *Hippocrates* is best, when either of the Emrods
that

that swell, runs ; because this easily passeth by those that bleed ; but the broad one dries up all that run with those that are blind, not without great hurt to the Patients ; which I would needs warn you of from the observations of *Spigelius*. ↯

Sometimes the Emrods swell so, yet lie so high in the intestines, that they can by no means be seen, and much less be touched by any hot iron be it round or broad. Then if any help be sought for by manual operation, that pipe is necessary to dry them up, which is pictured above Table XVI. Figure III. It is put cold into the fundament, and it is heated with a red hot pin (Table now quoted, Figure IV.) often thrust into the pipe, that being heated, it may by degrees dry up the Emrods.

The cure of the Emrods that run too much, by manual operation.

WHen they bleed too much, they must be touched one by one with that pointed instrument (Figure VIII.) leaving only one by which the blood, that is superfluous, afterwards may run forth. Their bleeding sometimes is so violent, that it is impossible for the most skilfull Physitian to stop it, though he use revulsion and astringent medicaments, as well taken by the mouth as outwardly applied. I had experience of this violence at *Venice*, (where I practised Chyrurgery a whole year, and the Emrods come often there to the Physicians to be cured) upon a certain noble Venerian, who was of the house of the *Contarini*, a young man of 26. years old, of a sanguine complexion, in the Spring time, it being the first time that ever he was troubled with the outward Emrods bleeding too much. I being called, I opened the inward vein of his right arm, and I commanded to apply dry cupping glasses to his back, without scarification ; I gave him old conserve of Roses with Crocus Martis, to take by the mouth (not neglecting the binding of his upper parts) and I applied to the part affected medicaments that had great force of astringency, tempered with the white of an Egg, and mingled with burnt cotton ; yet for all this the vehement bleeding continued ; and the Patient, otherwise very red, changed to look very pale, so that he was in danger of his life. I propounded to this noble man, and the standers by, to stop the flux of blood, and to save his life ; the cauterizing of the veins according to *Hippocr. l. 2. de Hemor. Aetius Tetrab. 4. serm. 2. c. 15.* and

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Sennert. pr. l. 3. p. 2. c. 13. contrary to *Hier. Fabrit. ab Aquapend* and I confirmed my proposal by *Hippocrat. aph. 6. sect. 1.* for an *extream disease, an extream remedy must be used; and aph. 6. sect. 8.* Those things that medicaments will not cure, the iron instrument will cure, that the iron instrument cannot, those the fire can; and of purpose I left out those words, *What the fire cannot cure, is incurable;* lest the Patient should take occasion to doubt of his recovery. But the Patient, when he saw death hard by, gave credit to our old Author, and taking me by the hand, promised to me and to the standers by, that he would admit of cauterizing, since there was no other means left. Whereupon I made hast home and furnished my self with instruments needfull; namely, with pointed instruments (Table XIX. Figure VII, VIII and IX.) and coming back, I delivered them to the servant of this noble Patient, that he might make them red hot; when they were very red hot, I touched severally the small orifices of all the Emrods that bled, and made a hard crust upon them, beginning with the uppermost, lest the blood, running forth of those that were not touched, should quench the hot iron. See *Ludovic. septal. l. 7. animadver. 112.* very worthy to be read over.

The blood being stopped by manual operation, and the best regiment of restoring diet being observed, that noble man was restored to his former health; and I advised him that every three moneths, he should set on four cupping glasses to his shoulders and back, with scarification; that nature might not, for the future, be accustomed to send down the superfluous blood to the Emrod veins. These things being rightly observed, he lived ten years free from any bleeding of the Emrods. But if Nature, before this, had been accustomed to open the veins of the fundament in this noble man; and been used to send the superfluous blood thither, I had left one of the Emrods untouched by the instrument, which afterwards should have been stopt with emplastick and astringent powders; that it might, either of its own accord, or else by art, be easily opened; and that the blood, daily abounding in the body, which is wont to be evacuated at set times, might be thus purged away, lest those diseases may follow (which *Hippocrates* mentioneth *sect. 6. aph. 12.* he that is cured of the Emrods that have lasted long, unless one of them be left, is in danger of a Dropfie or a Consumption; and *Epidem. lib. 6. sect. 3. text. 33 and 34.* They that are wont to bleed

at

at the veins of the fundament, are neither troubled with inflammation of the Lungs, nor eating ulcer, nor with fellons, nor little swellings, which are called Terminthi, from the likeness of Ciche Peason; and perhaps not with the Leprosie, nor other diseases of that kind; but being unseasonable cured, many fall into these diseases, and for that cause are in an ill case.) —

Emrods that are ulcerated.

THose that are internal must be dried up, that they do not degenerate into Fistulae; wherefore an iron pipe is thrust into the fundament, which hath a hole on the side (Table XVI. Figure II and III.) and into this is put a pin very red hot (Table XVI. Fig. IV.) and it is often drawn out, with which the ulcers of the Emrods are cauterized, and the parts near are defended. The pain being abated, and the Eschar taken away, the ulcer must be incarnated and consolidated, with sarcotick and epulotick medicaments.

Fig. VIII. shews the application of the Enterenchita or instrument with a pipe (Table XIII. Figure V.) to give clysters with at the fundament. In the year of Christ 1639. on the 18. of June, the wife of *Bartholomeu Abelinus*, a Weaver of *Vlma*, was delivered of a dead child, which in the privy parts had no mark to know it by, whether it were a man or a woman child; nor did there appear any way whereby this child could void its urine or excrements of the belly. In the Perinæum there hung down something as long as the little finger, which like to the blind intestine had no passage through it, from the *os pubis* as far as the heel, both the feet grew most closely together, but in the other parts the child was made very comly.

Fig. IX. In the year after the birth of Christ 1651. on the 5. of July, about six of the clock after noon, in the Village *Winterbach*, in the Dutchy of *Wurtemberg*, the wife of *George Langius* a Country man, whose name was *Anna*, brought forth a monstrous child, and so formed, as you see in the picture; namely with two heads, four feet, as many legs: So soon as this monstrous child was born, a reverend man *D. M. Ioan. Riep*, the ordinary Pastor of that Parish, did baptize it; and on the 6. day of July following, in the Church, he named it *Christianus* and *Christiana*; the child died at 6 a clock after noon, on the 7. of July; the Abdomen of the carcase and the breast were opened by me according

according to art, in the presence of D. Christopher van Rueff, Schorn-dorffius Physitian in ordinary, Iacob Guetelin Apothecary there, and the Child's father (O hard heart!) and of many more; and first I found two stomachs, to both which severally were fastned the small guts, which yet at the beginning of the greater guts, did conclude into one blind intestine, colon, and the right gut. When I had artificially taken forth the intestines, under the right Hypochondre, there was seen but one Liver only; and on the left side but one Spleen; but in the Reins three Kidneys, and as many Vreters of equal bigness, with their mouths all gaping into one bladder for the urine. As for the members of generation, there was but one Matrix with all parts necessary for generation; that which hung behind the fundament had no hole in it; but was shut up like the blind gut. In the cavity of the Thorax I found two hearts, included in so many Capsulaes, one Mediastinum which so parted the hearts one from another, that one lay on the left side, and the other on the right, the picture of which Monster, the cousin-german, by the brother, caused to be drawn for remembrance to posterity.

The last Table.

Of Galen's sling, a Canker of the lips; compression of the Artery cut; distending of the foot contracted; binding of the arm that is stiff; the opening of a great Fistula in the thigh; the places and bands for fontanels; the taking out of Musket bullets from wounds; the cutting of melancholy veins, called Varices; the bringing together of the lips of wounds by clasps; the scraping away of the shin bone that is rotten; and of the ligature of the breast, which Galen calls Cataphracta.

As Galen's sling, Lib. de Fasc. cap. 62. namely a band divided into four parts, prepared to bind up the under lip: The description of this I was willing to transcribe, for the good of those that are studious in Chyrurgery; but especially for Barbers who have not the opportunity to see that book concerning bands,

TABVLA XXXXIII



bands, that they may know that this band, and the way of using it, is both the most profitable and most necessary for Chyrurgians to know, to cure the diseases of the lips, and principally the Canker ulcerated. The middle, that is whole, lay upon the lower lip; but bring the upper parts to the chin, and from thence to the hinder part of the head; and there draw them like to the figure X, one passing above the other, to the top of the head; and between it and the fore-head, and deliver it to the Assistant; but the other two parts bring under the lower part of the ears, and draw them up to the fore-head, after the fashion of the letter X; and so bind these, and those delivered to the Assistant, all together.

E. shews the lip ulcerated, and bound with the sling band according to *Galen's* mind. The Patient was *Gallus Sigman*, a Country man of *Langenavia*, in the Jurisdiction of *Vlma*, who had an ulcerated Canker in his lips; who when, to his grief, he perceived, by many skilfull Chyrurgians, that he could not be cured of that mischief, unless it were cut forth by the roots: Being a poor man, he desired humbly from the famous Senate of that Republick where he lived, that he might be taken into the Hospital; and that the Canker might be cut forth, with an iron instrument, by the hand of the well experienced Chyrurgian *George Riedlin*; when it was cut off with the pincers, and the ulcer was almost cicatrized, it grew up again. The famous Senate being better informed of this growing of it again, committed the Patient to my care. This man, by reason of the pains of his head and limbs in the night, was much suspected by me, and so was carried to the Hospital appointed for those that are sick of the French Pox. He drank the decoction of *Guaicum*, whereby the pains of his head and outward parts ceased, But the Canker, being dressed with topical remedies, did yet pitifully afflict the poor man. Then I thought fit to cool his body with drinking Goats whey clarified, because it was over heat with sweating medicaments; and then to purge him from melancholy humours, by tempring of them with this Magistral decoction following:

Take River water, 15 pounds.

Whole Barley, 1 pugil.

Let them boil in a close vessel till the Barley split; Then add

Leaves of Borage,

Cichory,

Beto-

Betony,
 Carduus,
 Sow thistle, of each 1 handfull.

And let them boil again till 12. pound remain, casting away the herbs: In the strain'd liquor infuse for 24. hours,

Roots of Polypoe, 3 ounces.
 Pulip of Coloquintida tied up in a rag, 2 drams.
 Roots of black Ellebore prepared, half an ounce.
 Our Orris root,
 Crud Agarick, of each 1 ounce.
 Raisins, 6 drams.
 Aniseed, half a dram.

Mingle them all, and let them boil till half be consumed, and at the end for one boiling add

The best Cinamon, 2 drams.
 Nutmeg sliced, 1 dram.
 Senna leaves without stalks, 1 dram and a half.

The strained liquor is divided into nine doses, that one dose must be seven ounces, each of them was kept in a glass, oil being poured on it to swim a fingers breadth above it; and it was given every other day early in the morning; after which the Patient lay in his bed, well covered, untill his body grew moist; and an hour after he took some broth, and because of the Coloquintida the potion was somewhat bitter; presently after the taking of it, he swallowed a little of a roasted apple, or half an ounce of Raisins. This Purgative doth easily attract, not only the humour that may flow to it, but also that which is already come thither. And note that by the frequent use of this decoction, many have been freed from Cankers ulcerated; and more have been cured that were not ulcerated. Thus much by the by concerning this decoction.

His body being prepared, I was so won with the Patient's intreating me, to cut off his lip, that I did it, at first sight, with very good success; but the next day I observed a small knot, which the Pincers left, which is an instrument very inconvenient for such manual operation.

I attempted to consume this knot with that caustick powder, which *Aquapendens* got of an Empirick, and describes it *Lib. 1. Pentateuch*; but this would do no good: Whereupon I began to doubt of any certain cure, and to fear that the disease would come again, being there was so great appearance of it. But the Patient, as I commanded, fell to drink again of his purging decoction, every fourth day; and when the ulcer, by the help of this following un-
 guent

Take Oil of Roses compleat,
 Of Myrtles, of each 1 pound.
 Suet of a Calf gelded, 6 drams.
 Juice of garden Night-shade,
 Plantain, of each 10. drams.
 Wine of Pomgranates, 4 ounces.

Let them boil untill the juices be consumed, then strain them,
 And

Take Ceruss in powder, 10 drams.
 Lytharge prepared, 2 ounces and a half.
 Lead burnt and washt,
 Antimony prepared, of each 5 drams.
 Tutty of Alexandria, 5 drams.
 Camphir, 5 drams.

Mingle all in a leaden Mortar, and make an unguent.

~~Unguent~~ of Tutia, was almost whole (for there remained nothing but that small knot) by a good regiment of diet, and well provided with outward and inward remedies, having great hope of a sudden cure, he returned homewards with great joy. But that which I feared before, when half a year was past, came indeed; namely, a new relapse, a mischief far worse than the former. But I think this relapse is to be imputed unto the Pincers only, whereby I performed the operation; for this instrument was the most unfit for this operation. *Wherefore if a Canker be run over the whole lip; let the Chyrurgian, taught by mine and Riedlinus his errour, take heed that he cut it not off with a pair of Pincers; for it is almost impossible but that it will leave some root behind, from whence the disease will grow up again.* —

I remember that I have sometimes heard the most excellent *Adrian Spigelius* give this caution in his publick Lectures, yet I regarded it not, untill such time as I found the experience of it in this Country man and another; that this caution not being observed, the Patients are in danger of their lives, and the Chyrurgian to lose his credit. — The sick man being the second time fallen to a relapse before, now comes the third time to desire my help in manual operation; and I had performed it according to *Aquapend.* his direction, with a peece of silver money, having a very sharp edge, and dipt in *aqua fortis*, unless the vessels round about had been so extreemly swoln, that I had cause to think this would be but labour in vain.

O

B is

B is the use and application of that Instrument which I described before, Table XVII. Fig. III. and caused the picture of it to be set down. I have found this to be the most useful in wounds, or rather for pricks of the Arteries of the wrist, which easily happen in a duel, for to stop the bleeding, as it shall be made appear underneath by a singular observation. Others take silver money, which they binde over the wound; but because that ligature must be very straight, (for if it be too loose it will not stop the flux of blood) by reason of a gangrene ready to fall upon the end of the hand, and sphacelus upon that, (for the vessels are so pressed down, that nourishment and vital and animal spirits cannot come to them) it seemeth to be very dangerous, wherefore I think they would provide better for mens safety, if all Chyrurgians would have such an Instrument in readines, to use when necessity requireth it. At *Padua*, where the use of Anatomy and Chyrurgery hath been in great esteem, and flourished for many years, in my time there was a most experienced man to open an Artery, who for the cure of the most bitter pains of the head, by perswasion of the Physitians, oftentimes cut the Artery of the wrist, and making an evacuation of as much blood as he was ordained to do, he pressed the wound so close with the foresaid Instrument, that not one drop of blood could come forth against the will of the Chyrurgian, nor yet any symptome otherwise to be feared followed upon this compression.

It often hapned at *Vlna*, that by unskilful Quacksalvers, and men not worthy of the name of Chyrurgians, the Artery that accompanieth the vein Basilica, was opened by mistake instead of it, whence oftentimes there was made too great evacuation of blood, or a great *aneurisma*, which ill cured caused death: wherefore if hereafter accidentally any such error happen, for the remedy of it (besides that remedy the most famous Colledge D. D. *Gregory Horstius* propoundeth in the first of his Chyrurgical Observations, which is most worthy to be read) such an Instrument, which by pressing the Artery, will stop the bleeding of it, that it may be applied to the Artery of the arm being hurt, in my opinion would be very convenient. In *Helvetia* they happily press down the Arteries of the temples, that are broken or cut by chance or by Art, with the convex part of the middle shell of the Walnut.

C sheweth the application of the iron Instrument (which I took care to be printed before Table XVII. Fig. I. out of *Guil. Fabri. Hild.*

his

his book of burnings) serving to extend the knee contracted. *Jacobus Murdel*, Son to *Iohn Butcher*, being but five years old, stumbled and fell upon the earth paved with flints, as he ran after his Father, and he walked up and down afterwards, and never complained of any pain untill the fourth day after, when he began to halt, and to complain of his knee that was lame; his Mother, careful enough of the boy, sendeth for a Barber, called *Iohan. Andreas*, who presently applied a Cataplasme against bleeding of *Fælix Wurts* his prescription, and the next day (to discuss as I suppose) he applied a three-fold linnen cloth wet in hot wine and pressed forth again. The boy thus drest, fell into a most sharp fever, which by convenient remedies rightly prescribed by a Physitian, ended on some critical day, by an Impostume in his foot that was affected, namely an Erysipelas inflammation, which went over all his leg and thigh, also as far as his groin, that vehemently afflicted the childe with heat, redness and pain. The inflammation being cured, there remained upon the knee that was bruised before the Fever came a huge swelling, which when it resisted all resolving means, they tried to bring it to suppuration, and they opened the knee both on the outside and inside with a caustick medicament, and no matter, or else very little came forth. The business being thus, the ordinary Physitian departed, and left all the business of the cure to the Barber *Andreas*; this man dressed the childe with the best skill he had, and healed up the ulcers made with the caustick, and hardened the tumor exceedingly. The Mother being now more careful then ever, and finding the good man not sufficient for this cure, and also doubtful, she sent for me to ask my counsel. These things were by relation, but when I came, I found the tumor in his knee not unlike to that which they call *Glidch swam*, and the boy so contracted, that he could not extend his knee. Having made this prognostick, that this disease would be doubtful and of long cure, I began the business thus: To soften and discuss the tumor, I did daily, for a quarter of an hour, foment the part with a sponge wet in the following decoction.

Take Herbs,
 Mallows,
 Mullens,
 Betony, of each one handful and a half.
 Mallow flowers, one handful.

Q 2

Linfed.

Linseed, one ounce.

Marsh-mallow roots, two ounces.

Cut and bruise them, and put them in a paper.

After fomentation, I laid on the cerat Diasinipi, which Hierom. Fabrit. ab Aquapend. describeth cap. de Meliceride, and Doctor Spigelius corrected thus.

Take Sal Gemmæ,

Lytharg of Gold

Cerufs, of each four ounces.

Wax and Turpentine, of each two drams.

Galbanum,

Opoponax, of each half an ounce.

Mustard-seed powdered, two ounces.

Old Oyl, nine ounces.

Sharp Vineger what is sufficient.

Make a liniment, or a soft cerat according to Art.

Under the hams and on the sides, I anointed the knee with this following unguent.

Take Unguentum Evæ, two ounces and a half.

Nervinum, six drams.

Cerat Citrinum, one ounce.

Oyl of Earth-worms, six drams.

Of Foxes, two drams.

Mingle these for an unguent.

Take Oyl of Olives, one pound.

Marrow of an Ox leg,

Yellow wax.

Rosin of the Pine tree, of each two ounces.

Fresh Butter, three ounces.

Mingle them and make unguentum Evæ, or Anodyne, which Foscarinus brought with him out of Turkey.

Take juice of Tobacco six ounces.

Yellow

Yellow wax very new, four ounces.

Rosin, three ounces.

Turpentine, two ounces.

Oyl of Myrtles what is sufficient.

Make a soft cerate.

I have the description of this out of the first Book *Pentateuch*.
Chyrgic. Hieron. Fabrit. ab Aquapend. cap. de herpete miliari.

The knee abated of the swelling, by the continued use of the fomentation and cerate; but by anointing the ham, the Patient found no remedy for the extending the part, wherefore I applied this Instrument, wherewith by degrees the leg might be extended. It was an iron; which the Patient (after he hath first applied to strengthen his knee *Ceratum Barbarum*, mingled with the Magistral *Diasinapi*, and anointed his ham, and laid this Sparadrap upon it.

Take the cerate *Citrinum* before described, two ounces and a half.

The newest yellow Wax, two ounces.

Rosin and Turpentine of the Pine tree, of each one ounce,

Mingle all at the fire, and dip your cloth in it.)

wore night and day, every day turning the screw of the Instrument a little, untill the leg was become streight, so that in one year the Patient could walk without a staff. The cause of the contraction was the ill situation of the foot, which they should have prevented with a wooden capsula, which you may see Table XXI. Figure VI. †

An. 1636. on the 10. day of October, I was called to come to a boy whose name was *Martin Gravius* of *Leishmens*, who shewed me his leg contracted toward the hinder parts, from a ganglion in his knee, which, premising universals, I brought to stand right in eight moneths by the same Instrument, and with topicalls applied. †

D. Table XVIII. Figure V. sheweth the use of the Instrument;
O 3

strument; for as for the extension of the arm, there is nothing better then to carry a heavy stone in a mans hand, so to bend it by degrees; I have found nothing better then this Instrument. The Patient was a Souldier's boy, who had his arm out of joint, and by reason of ill situation he could not bend it; this boy, as I did the others before, I daily anointed, applying the Sparadrap, and I bade him wear the Instrument, and he grew well within two months; and he could for his need bend his arm without any pain or hindrance at all. Wherefore let young Chyrurgians take heed, that they place broken members as they should be placed; for oftentimes, besides the contraction of the part, inflammation will follow an ill figure. See Table XXVI. —

E. *An.* 1626. on the 19. day of *November*, my brother *Martin* called me to his father in law, *Iohn Wolventer*, a Mariner of *Vlma*, and most skilful to sail in the *Danow*: This very man, whom my most famous Colleague, *D. D. Greg. Horstius*, cured in his Chyrurgical Observations IX. shewed unto me a Fistula in his left thigh, (which from a contusion was brought to suppuration, and being carelessly dressed, came to this pass) and asked help from me. I trying the bigness of the Fistula with my probe, found it to be only superficial, and long and broad enough: But because these sloping Fistulae are very seldom made to folder together, as it is well known, the next day I attempted to cut it with the cizers called *Deceptor*, spoken of before Table VII. Figure IX. (not being at that time skilled in the Instruments called *Syringotomi*, described Table XII. Fig. I, II, III. and Table XIV. Figure I.) when the Patient was not aware of it, thinking to fill it up with flesh afterwards: But when that operation proceeded too slowly by the cizers, the Mariner, perceiving the Instrument, removed his thigh, and with his hand thrust off my right hand; whereupon, laying aside the cure by this Instrument, I bound up the Fistula, a little dilated (as you may see in the Figure) with the white of an Egg beaten, and some carded flax; when the blood was stopped, every third or fourth daies I syringed it with Hydromel to wash the cavity; and on the fifth, sixth and seventh daies, I injected sharp black Wine wherein Flowers of wilde Pomegranates were boiled, and Pomegranate pills, &c. and I bound on a new sponge wet in the same liquor, and pressed forth again, with a long roller that was three fingers broad (for a broader will not binde it so well;) I began my ligature from beneath, on the
lower

lower parts, and I ended it above the Fistula on the sound part; with these medicaments, that have an huge glewing quality, and the manner of ligature, my Brother's Father in law was most luckily cured in one week: And from that time I never used any manual operation, unless medicaments to cure were used first in vain; and never after that time did I use those deceitful cizers, called *Deceptoria*, because they deceive the Chyrurgian and not the Patient.

F sheweth the place for Issues on the arm. Fontanels are made in divers places, but those that are made by caustick on the arms are the best, and seem to be most convenient; and therefore Physicians make choise of them before the other, namely to make evacuation of all those humours which may offend mans head; because these have the middle place exactly between the parts above and the parts below, and they hinder the rising up of the humours unto the head; and they most commodiously make revulsion of them, and derive them that are flown up to the head, by reason of their convenient distance: and they do not onely help much for the diseases of the head, eyes, ears, nostrils, mouth, jaws and throat, but also for the diseases of the thorax, heart and lungs. And though these Issues for the said diseases do help much, and are most commodious for the sick, and that the rather, because they can look to them, and dress them with their own hands; yet there are multitudes of men who condemn all Issues, despising their own healths, because these Issues require care and labour; others hate them because they stink; and some are afraid to have them burned, because they fear the fire. I answer these men, that they cannot put off and on their clothes evening and morning without labour and care, nor can they void their excrements without stink; but as this or that is necessary for mans life, so are Issues for some people to live in health, and enjoy their lives most needful: And as no man repenteth his labour to put off and on his clothes, so no man complaineth of these Issues, but taketh great pleasure to dress them, either from the delight they finde when they itch, or because from day to day they clearly see the evacuation of the matter, which was bred by errours committed, and being kept in the body would produce much hurt; or rather because hereby men regain their healths which they had lost: and therefore oftentimes men are not contented with one Issue, but will have two or three, or more made,

— as they finde cause. Add to this, that Fontanels, if they be guided by Art, do not stink, and made in a convenient place will cause no pain. —

The place for Issues requireth four conditions. First, That the Patient can see it. Secondly, That it be fit for ligature. Thirdly, That it may have a vein. Fourthly, That it be made between two muscles, to prevent pain, wherewith motion is easily hindred. —

This place is easily found, if the Chyrurgian doth variously turn and bend, and extend the Patient's arm, untill he finde the due separation of the muscle Deltoides and Biceps: Many make the Issue upon the Deltoides it self, some at the end of it, others on the upper part of it; but I, for the said conditions, make choice of the place marked with the letter F; namely, the distance between the muscles Deltoides and Biceps; and that rather on the upper part, which is less sensible, then on the lower part, and the humour runs in short time to it. —

Having found the place for the Issue, the way must be considered on; for a Fontanel is made with a lancet, a potential or an actual cautery: But since a red hot iron is most usual with the Inventours of this manuell operation, I do not like potentiall cauteries, because they work slowly, and oftentimes with great pain; nor are they so safe, because we do not exactly know their force in working; but sometimes, besides our expectation, we finde them weaker or stronger then we imagined. Also I refuse a cutting Instrument, or lancet, for the reasons now alledged; to which I add, that cutting of an Issue will make it bleed, and many cannot endure to see their own blood. The Antients, with great dexterity, used the red hot iron which was crooked, and had a long handle, (described Table I. Figure I.) But when they found that that Instrument did not only burn the flesh, marked before by the Chyrurgian, but also heated the parts that are near to it, they invented another Instrument besides this, that had a pipe to it that defended the parts adjoining, see Table I. Figure I. through this pipe, not heated, and thrust hard upon the skin, they thrust in a solid red hot iron, that it may enter as far as the Chyrurgian will have it, sometimes deeper, sometimes not so deep. *Julius Casserius Placentinus* invented an Instrument described before

before Table I. and here it is marked with the Letter G, which hides the fire, and defends the parts near adjoining from being hurt: And above all other instruments to burn fontanels, that are without the head, it is the most convenient, and the most safe. Above six hundred Patients will testify that I have done this to them, to the admiration of the standers by, and to the laughter of the Patient; and so many are now alive who have issues of my making.

H is the ligature to bind upon the issues of the Arm; it is most commodious, because it is easily put on by the Patient; most profitable, because it preserves the issue in its place; and it is most fair, because being made of white linnen, it may be washed; neither is this like other bands so easily seen or felt.

I is the place for issues in the Thigh (which must be sought for four fingers breadth above the knee, between the muscle *Sartorius* and *Vastus Internus*) most fit for ligature; and because the vein *Saphena* joins to it, where an issue is most profitably made for hysterical passions, to make revulsion and derivation. I have cured Women this way, whose names I conceal, who by the stopping of their Courses, were troubled with *Furor uterinus* and other symptoms; and more that had ulcers upon their shins hard to be cured; thereby revulsion, but here by intercepting and deriving.

K is an instrument that I made most happily, about the beginning of the muscle *Gastrocnemius*, against the pain of the hip. Truly the most excellent Physician *Adrian Spigelius*. *Lib. 5. Cap. 9.* in *Human. Corp. Fabric.* commendeth the making of an issue, in the Calf of the Leg, with an actual cautery, by reason of the passage of the Ham vein; or for the meeting together of the beginnings of the muscle *Gastrocnemius*; which *Daniel Bucretius*, upon *Julius Casserius Placeutinus* his Anatomical Tables (which I bought, with *Spigelius* his money, from the heirs of *Casserius*) marked L. 1, Table 2. with the Greek letter π . But because that place, by reason of its sloping downwards, is very inconvenient to bind; I, according to *Andreas Vesalius* in *Corp. Human. Fabric. Lib. 2. Table 10.*

De

De Musculis, chose a place somewhat higher, and that not without good reason. For an issue in this place hath all the conditions of a good issue that I speak of before. 1. The Ham vein, which both the Antients and latter Chyrurgians, with very good success opened for pains of the hip; and for many more diseases which *Aurelius Severinus* hath collected *Lib. de Angeologia*, Cap. 26. 2. Here is the distance between the beginnings of the muscle of the Calf of the Leg; for that noted nerve, that runs under the knee, is not in danger to be hurt; for where the issue is made, that nerve going forward hath already crept deeper, that it cannot be offended with a red hot iron. 3. For the Ligature that standeth fast. 4. The Patient himself can govern and dress it when he pleases. + It is a most certain thing that he who is troubled with pains of the hip, cannot easily be freed from them; that he can promise, that for the future, he shall never be troubled with those pains any more. Yet I can rightly say, that after the use of the Bath at *Thalsens*, commonly called *Sosunbrun*, lying in the Country of *Ulma*, by help of this issue, I cured myself, for nine years, from this pain; and may be longer, if it please God I live, taking my farewell from all opening of the hip vein, and all purgatives and sweating medicaments, and from all topicals, which I used, for a whole year, by the advice and prescription of the most famous Physicians. Wherefore if hereafter, for such continued pains of the hip; outward and inward remedies be used to no purpose: by my counsel let men flie to this manual operation, with good hope of recovery, as unto a sacred anchor; namely, to burn a fontanel in the place marked, for I doubt not but the Patient will have his health, and the Chyrurgian shall obtain great praise by it.

L is the Band for issues in the Thigh and Calf to be bound with; and it is the best of all bands. How fontanels made should be kept and rightly ordered, we might learn out of that leaf of *Aquapendens*, where he speaks of it, in his work of manual operations, under the Title of Fontanels; unless that by the carelesse of the Printer, to whom the Authour delivered the sheet to print, it had been lost: Wherefore, this being wanting, let men read that most elegant Treatise, which *Hie-*

rom. Capivacius writ, concerning the right ordering of fontanels; and Dominicus Galvaus, a Phylitian at Athesin, to whom, I confess, I am obliged for my Sparadrap :

Take of the Cerate of white Lead, or *album coctum Aug.* 12 ounces.
Powder of Cerufs, 4 ounces.
Frankincense,
Gum Dragant, of each 6 drams.
Orris Florentine,
Benjamin, of each 5 drams.
Storax liquid,
Sweet Oil of Spike, of each 2 drams.
Venice Sope, 2 ounces.
Wax, what may suffice, or 2 ounces.

The Chyrurgians at *Verona* when they use it for men, they add a little Musk to it, to make it smell the sweeter,

Mingle them according to Art, and with a new linnen cloath make a Sparadrap; with which, for twenty and two years, I have preserved above a thousand issues from all evil symptoms, to the admiration of those that used it.) *de Fantanellis Lib. 2. Cap. 13, 14, 15, 16 and 17.* which I am certain was writ most exactly (according to the mind of his Master *Aquapendent*) yet in Italian, being worthy to be turned into Latine.

Some mightily extoll that Cerate that the great Duke of *He-truria*, keeps his issues free by, from all symptoms that might fall upon them :

Take juyce of Ivy, 3 pound.
Tobacco, 1 pound.
Turpentine,
Pine Rosin,
Unguent of Roses Mesue,
Yellow wax, of each 1 pound.
Oil of Nutmegs, 2 ounces.
Powder of sweet Cyprus, 1 ounce.
Choice Cerufs, 1 pound.
Mingle them and make a Cerate.

M is the Pincers for wounds with Gun shot, to draw out the bullets that lie deep in; it is handfome^{ly} made, and I described it before to the life, Table XIV. Figure IX.

N sheweth the use of the said Pincers, and the way to apply it, which is this: Pull forth the wimble, and let down the outward pipe toward the spoons, so that the Instrument may be shut, and may resemble the form of an Instrument, printed Table XIV. Figure XI. This being done, the outward pipe must be anointed with Oil of Roses, and the Instrument must be gentle thrust into the wound with the Chyrurgians right hand, untill such time as the toothed end of the spoons lay hold of the bullet; then the Chyrurgian shall hold the Instrument between his forefinger and thumb of his left hand, and with that he shall presse against the bullet as hard as the Patient can endure it, that it may not fall off from the Pincers; after this, with the fingers of his right hand, he shall put in the Piercer by the hole of the round cover, so far as to the bullet, and he shall turn that about, and by degrees fasten it in the bullet: But so soon as the Chyrurgian knoweth that the Piercer sticketh fast in the bullet, he shall by little and little draw up the outward pipe, and shall presentlie put it down again, that the spoons opening may take in the bullet, and by holding it fast when it is in, may help the Piercer to bring it forth. These things being rightlie performed, the Piercer and both Pipes, and the whole Instrument, with the bullet sticking and received in, must be drawn out by the way the Figure representeth unto you.

Note, that many make mention of and commend the Instruments, whose Figures you find pictured before Table XV. by which, if the bullet falleth off, a nerve, vein or arterie is easilie hurt; wherefore they that have not at hand those two Instruments, Table XIV. Figure X, XI. (which for above twenty two years, during the German wars, I happily used in curing many Souldiers) shall do excellently well, who for other Pincers use the right Cranes bill, Table XI. Figure VI. or the blunt one with an angle beat backwards, Table IX. Figure X. for with these the Chyrurgians at Padua do frequently take forth bullets out of wounds, not doing any hurt. *Read the most exact Book of Francis Plazzon, of wounds made with Gun-shot.*

O sheweth

O sheweth the cutting of the melancholy veins called Varices, according to the minde of *Aquapendens*, which yet though it be horrid to our Germans, so ill symptomes may easily arise from it. Whilest I studied at *Padua*, I saw a Country-man in *St. Francis Hospital*, endure this manual operation with great profit; under the hand of the most excellent *Spigelius*.

I once, in imitation hereof, tried the like manual operation in my Country; but by an error of the Patient (who stirred too much, whereas he should not stir at all) there followed great inflammation and vehement pain, which forbids me to use it, because the event did not answer my desire; and the Patient and his Parents wished that I might be taken and tormented with the like inflammation: Having once suffered ship-wrap of my credit, ever after I dressed these varices upon the extreame parts; with only topical means, laid under stockings made with dogs skin.

P sheweth a wound made very deep in the thigh with a Persian dart, and it is united with four stitches or loops, and in the most sloping part of it, having a hole, into which is thrust the tent Q, to keep it open for the matter to come forth.

R sheweth how to scrape away the rotten shin bone with rasps, described Table VI.

Marsin Schmidt of *Oellingen*, a boy of eleven years of age, complained of a most vehement pain in his right shin bone, and that by two holes the stinking matter ran forth; one of these was about the inward ankle-bone. and the other about the outward ankle-bone. This sore was dressed by the ordinary Barber of that Village, for a dislocation of the foot. In the year 1640. upon the 16. day of *December*, the sick boy was taken into the Hospital at *Vlma*; and I, at the command of the famous Senate, did visit him; and I presently found, that this infirmity was no dislocation, but the corruption and eating away of all his shin bone, which I intended to cure. The first day therefore I prescribed him a good regiment of diet, and this following potion.

Take Syrup of Roses solutive, one ounce and a half.

Electuary Linitivum, six drams.

Decoction of Flowers and Fruits what may suffice.

Mingle all for a small potion.

By this he had five stools of very watry matter. On the 22. of *December* I cut his leg with an incision knife, from the head of the shin-bone as far as the inward ankle-bone, doing no hurt

to any vein, artery, nerve or tendon; and with the nails of my fingers I separated the Periostium from the bone; and I bound up the wound with Hemp hards, spread with an astringent medicament, made of the white of an Egg beaten with Rose-water, and the astringent Powder of *Galen*, and with a band having two ends. On the 23 day, when the blood was stopt, I unbound the wound, and looked into it, and I saw that my judgement did not fail me in it; for not only the fore part of the shin-bone was corrupted outwardly, but the hinder part was corrupted as far as the marrow of it; and after that I presently took forth some pieces of the shin-bone corrupted with my pullers, and I bound up again the wound with my medicament and ligature, by reason of the vehement crying out of the Patient. On the 24. day I scraped the corrupted bone with my scraping Instruments, and I found the lower end of the shin bone very much corrupted and stinking: wherefore I purged the shin-bone with Decoctum Divinum, and I strewed upon it the Powder of Birthwort, and Orris Florentine, and I bound up the wound covered with Ceratum Diapalma. On the 25. and 26. daies, I scraped the bone by reason of the great corruption, and I drew forth with my pullers many pieces of the rotten bone. On the 29. day, I cut off with my cizers, Table XX. Figure 1, from the lower and inward end of the shin-bone, a great part that was rotten. On the 30. day, the stink of the bone did somewhat abate, by the using of Decoctum Divinum, On the 31. day, after that the pain of the foot and stink was abated, I fed the Patient with glewing diet, to breed a callous; and I laid upon the wound Ceratum Divinum to bring it to cicatrize. From this time, untill the 4. of *January* of the year 1641. from the lower end of the shin-bone, or external ankle-bone, rotten matter ran forth. On the 6. day there appeared solid flesh about this hole. On the 7. day the wound was handsome; and Nature wholly separated the shin-bone from the lower part unto the middle of it, where it was rotten; when the bone was separated, the wound grew well in a moneths time.

Of Nodes coming from the French Pox.

NOdes of the French Pox, if they will not be cured by medicaments with *sarsa*, given by the mouth (which far more easily and quickly cures all knots and accidents of the French Pox, than *guaicum* doth) then this following Cerate, to excellent profit, is applied to them:

Take

Take Quick-silver killed with fasting spittle, half an ounce.

Powder of Indian Tobacco, half a dram.

Plaister Diachylon with gums,

Cerat Oxelæum.

Citrinum, of each 1 ounce.

Distilled oil of guaicum, 1 dram.

Mingle them and make a plaister.

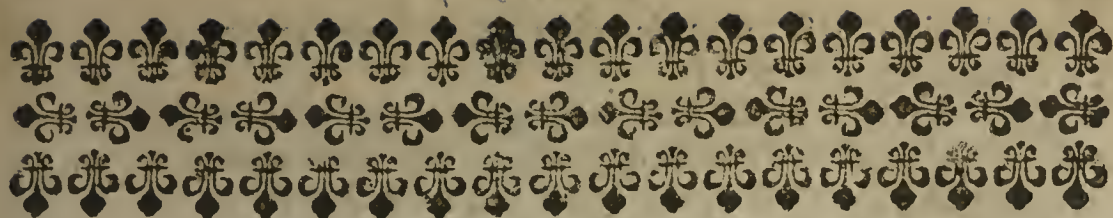
But if for all the use of this remedy, they continually ake, and are not discussed, it is a most certain sign that the bone under the knot is corrupted; and therefore it is necessary to make incision upon the node, along the shin bone, with an incision knife, Table II. Figure II. and the bone being uncovered, must be scraped away with scraping tools where it is corrupted. Such knots as they seldom happen in *Germany*, so the manual operation for the cure of them is not admitted, but to those only that desire it in their most bitter torments: But in *Italy* most frequently and happily, men are cured by manual operation: Wherefore though I had many, both noble and ordinary people, under my hands to cure, who were tormented with nodes of the French Pox, yet I was suffered to use manual operation upon very few of them. But because at *Padua* I have seen this operation so often, where multitudes are alwaies complaining of pains in their shin bones, there I often used it; and I would needs insert, very briefly, into this work of ours, the way used by those of *Padua* in performing this operation, that Students in Chyrurgery (for whose sake I write this) may know how speedily to help their Patients that earnestly desire manual operation from them, when there is no remedy almost left. The first day they cut the venereous node, with the knife mentioned, upon the length of the shin bone, unto the bone it self; then they dilate the wound with hempen hards, wet in the white of an Egg beaten; and they swath the leg about with a convenient ligature, to keep off a flux of humours: On the second day they take off the hards, and lifting up the wound artificially, having first very well defended the sound parts about it that they may take no hurt, they fill it with a caustick (I could rather wish it were with that which *Ambros. Paræus* describeth by the name of *Holosericum Lib. 25. cap. 32.*) After this they cover it with a plaister extended all the breadth of it, but not going round about the leg; and they bind the leg again, with a pressing band,

band, according to Art. On the third day removing all these, they apply things to make the Eschar fall off; when that is taken away they scrape away the rottenness unto the quick; and then with drying powders they cover the bone with flesh. They first cut the node, that the caustick may sooner come to act; yet incision is not alwaies necessary, unless it be for those who will hardly beleieve the Chyrurgian when he tells them that the bone is rotten, untill such time as they see it or touch it themselves.

S represents the Curashier ligature, which borrows the name from the similitude it hath to a Roman breast plate; and it is profitable for those who must have a band, near the throat, upon the broad shoulder bone, breast, back or sides. But a swath with one end is thus rolled about: First it is put under the arm-pit (*Galen l. de Fasciis 79.*) then it is brought slanting over the breast, near that place where the throat is joined with the breast bone; then by the hinder part of the neck, to the broad shoulder bone of the opposite shoulder; and so to the arm-pit under that; and from that to the hinder part of the neck that is above the part; where the band was first laid on, so that near the hinder part of the neck, there may be made a cross like to the letter X. after this it is carried a slant to the broad shoulder bone on the other side, and to the arm-pit; and from the arm-pit, to the hinder part of the neck, and upon the vertebra of the neck, it may represent the letter X; then again it is brought under the arm-pit, and slantingly near to the part where the throat joins with the breast bone; so that here also there must be made the likeness of the letter X; and near the hinder part of the neck, and above the broad shoulder bone, and under the arm-pit, that it may represent the letter X four times; namely once before, once behind and twice near the throat. And by the same reason it is brought about as oft as need is; then it is wound round about the breast and the sides so, that the whole ligature represents a breast plate.

And thus, by God's permission, in these 43. Tables, I was willing to set before all men that desire to be instructed, and to describe and publish the best way I could, being led by infallible experience, the delineation and proper way of using my Chyrurgical Instruments.

OBSE-



A

CENTURY

OF

Chyrurgical Operations.

Confirming and clearing what hath been
briefly mentioned in the Description of the
foregoing Tables.

OBSERVATION I.

*Of a wound in the Head with a depression and large Fissure
of the Skull.*

IN the Year, 1637. The 9th. of January, about seven at night,
John Happel of the City of *Ulme*, a Quartermaster. Being of a
hot and moist temperament of body, and in the two and thirti-
eth year of his age, was wounded in a Duel, by a Trumpeter; re-
ceiving seven wounds, one of which was upon the outward part of the
Radius of the left arm near the wrist: the other six in his head; the
first of which was behind his left ear, the second about the Coronal
Suture, the third near to the Sagittal Suture, the fourth and fifth up-
on his fore-head cross-wise. These were all superficial, or in the
Skin, or at least made only with the edge or point of the sword; but
the sixth was in the temporal Muscle of the right-side and very dan-
gerous: for the sword being turned backward, the wound was made
by the hilt, the lesser part of the Pommel driven in, and the Skull
or Cranium hereby fractured and depressed. A Chyrurgeon of the
City

P

City dressed these wounds after the same manner as ordinary wounds use to be.

Upon the tenth by the command of the Consul, I visited him, and made sight of all these wounds, except that in the temporal Muscle; neither was I deceived in my opinion: for I found the Skull to be depressed with the broad bended probe described (Tab. IX. Fig. VI.) whereupon I presently put a piece of new Sponge twisted about into the wound, that it might be dilated; I sprinkled the powder of Orris, or Flower-de-Luce of Florence, and Birthwort upon the bone, I applied a Digestive to the lips, and upon that Diapalma, and a convenient Cataplasme.

Those wounds about the Coronal and Sagittal Suture, I did also somewhat dilate, putting in Lint with a Digestive, and a Searchcloth of Diapalma over it; I made use of that Bandage, or rowler described, Tab. XXXI Fig. IX, X. The other I dressed as simple wounds; as to his dyet, his meat was Panado, decocted Barley, and Damask Pruans: his drink this following Magistral Barley-water.

Take of Barley half an ounce.

Corinthes, two ounces.

Annis seeds a dram and a half.

Boyl these gently two hours in three measures of Fountain water, and before it be cold add two drams of Cinamon, and afterward temper it to the Palate, with tincture of Roses, and Pomgranat wine; in the evening he used this Glyster to loosen his belly, having been very much bound for five days.

Take of Mallows,

Violets,

Betony,

Pellitory of the wall, of each an handful.

Fennil seeds,

Citron-seeds of each a dram and half.

Flax seeds six drams.

Marshmallow Roots, half an ounce.

Boyl this in a sufficient quantity of water to ten ounces: and to it being streined out.

Of hony of Roses an ounce and half.

Lenitive Electuary, one ounce.

Oyl of Violets.

Oyl of Camomile, of each an ounce and half.

Mix

Mixing them according to Art, and let them be made into a gentle Glyster, whereby the Patient may not be too much disturbed.

Upon the twelfth day at ten in the morning, by reason of an unquiet night, and a greater swelling and pain about the wound. I declared to the Patient and the standers by, that it was necessary to dilate the wound in the temporal Muscle with an Incision Knife, and the wound being bound up again as before, I prescribed to the Patient by reason of a bitterness in his mouth this following Syrup to purge Choler. †

Take of

Loofening Syrup of Roses two ounces.

Extract of Rubarb a dram and half.

Extract of Diacarthamum half a dram.

Creme of Tartar one scruple.

Black Cherry water as much as sufficeth by mixing to bring it into a liquid Syrup.

This gave him five stools of a bilious matter.

The thirteenth day he was somewhat better then the day before, and I bound up the wound the same way as formerly.

Upon the fourteenth day the Patient complained of a great pain in the wound of the temporal Muscle, and therefore together with the Chyrurgion who was called at the first, we determined to dilate the wound with an Incision Knife according to the length of the Fibres of the temporal Muscle, in form of a Triangle, or the letter V. Tab. XXXI. Fig. XI. that the Skull near to its depression might be more conveniently penetrated by the Trepan, and be raised up by the putting in of the Levator, Tab. XXXII.

Upon the 15th and 16th by reason of the painfulness of the wound and the new Moon I bound up the wound as before. †

The seventeenth, for the pain which the matter caused which found no way to get out, (for the wound was too narrow) he made use of his Lenitive Glyster.

The 18th day the Patient having had an unquiet night, I dilated the wound of the temporal Muscle in the form of the letter V. with a streight Incision Knife, Tab. II. Fig. XI. I separated the Pericranium from the bone with my nails, I filled up the cavity with Balls of Hemp hardes moystned with the whites of Eggs stirred up together, and sprinkled over with an astringent powder, I anointed the parts about it with Oyl of Roses, and put on a Bolster of Linnen dipped in red Wine and pressed out, and also the rowler or bandage before mentioned.

The nineteenth day the blood being quite stopped after the inci-
P 2 fion

sion of those parts which cover the Skull, I shewed to the standers by, the depression of the Skull which I foresaw, and declared the necessity of making perforation.

On the twentieth I perforated the Skull with the Trepan near to the depression and the Coronal Suture, I made the sides of the hole smooth with a lenticular Instrument described Tab. XI. Fig. VIII. and putting in a small Levator. Tab. XXXI. Fig. VII. I lifted up the depression of the Skull, I applyed to the thicker Membrane a round piece of red Silk dipped in Oyl of Roses lukewarm fastned to a thread, Tab. XXX. Fig. VIII. To the Skull a Cephalick powder, and dry Lint; to the lips Lint covered with a Digestive, and over that Diapalma, and the Cataplasim of Hippocrates.

On the twenty first, both the Wound and the Patient were better, and he confessed that he had slept all night, therefore I applyed again to the thicker Membrane red Silk dipped in Oyl of Roses, and fastned to a thread; to the Skull, Powder of Round Birthwort and Flower-de-Luce of Florence, to the lips this digestive.

Rozin of Turpentine washed in Betony-water two drams and a half, and the yolk of an Egg; adding over it Diapalma and the Cataplasim.

From the twenty second to the twenty sixth, the Patient went on well as to his wound.

Upon the twenty seventh, I cut out four pieces of the Skull pressed down, which yeilded not to the Levators delineated in Tab. XI. but with a new Instrument Tab. IV. Fig. XI. and applyed to the thick Membrane by reason of some corruption, the Silk dipped in a Liniment, which consisteth of Syrrup of red Roses, and some drops of Spirits of Wine, and Turpentine, eating away the fleshy excrescence with Powder of burnt-Allum.

On the twenty ninth for the purging away serous and bilious humours, with which his body abounded, I prescribed this following Infusion.

Take

Take of the best Rubarb one dram,
Agarick newly made into Troches a dram and half.
Leaves of Senna of Alexandria, half an ounce.
Ginger, and Creme of Tartar, of each half a scruple.
Borrage flowers half a pugil.

Infuse these a whole night in a convenient quantity of black Cherry-water, adding to it being strein'd out, an ounce and a half of the best Manna.

This brought away a great quantity of serous humours

On the twenty ninth and thirtieth, the Wound and the Patient were

were in good condition. On the third of *February* by reason of irregular Dyet he fell into violent pains of the Collick, so that he could not sleep in four days time, yet after the use of this Glyster.

Of the carminative decoction ten ounces.
Hony of Roses,
Hony of Rosemary-flowers, of each an ounce.
Lenitive Electuary ten drams.
Oyl of sweet Almonds,
Oyl of Rue, of each an ounce and half.
Mix them for a Glyster.

The pain decreased, till the evening, when he made use again of this Glyster; the wound went on well as in the foregoing days, and red flesh grew upon the dura Mater, and in the middle between the two Tables of the Skull. On *February* the ninth, after he had taken a potion made of three ounces of Oyl of sweet Almonds, two ounces of Manna, and an ounce of Camomile-water; the Collick which had much tormented him somewhat abated: for he had passed the whole night without sleep. On the tenth he used a Bath of fresh water, in which a Bag with these ingredients were boyled,

Take of
Mallows,
Camomile,
Pellitory of the wall,
Speedwell,
Flax seeds,
Carui seeds,
Bran, of each an handful.
Sow them into a Bag.

With this the Patient was better. On the eleventh day he vomited a great quantity of Choller, in the evening the ordinary Glyster was given again, after the coming away of which, the vomiting (dangerous in wounds of the Head) and the pains about his Stomach ceased; but notwithstanding this, he could not sleep: I ordered therefore four grains of Laudanum Opiate, with the Magisteries to be taken in conserve of Roses, upon which he slept six hours very quietly. I dressed the wound when filled up with flesh, with Lint and Ceratum Divinum, that it might come to skin.

Upon the fourteenth and fifteenth, he was well; but because he abounded with ferous and bilious humours, he took this purging powder in Wormwood Wine.

Take of,

The best Rubarb powdered, two scruples.

Of black Mechoacan, half a dram.

Crene of Tartar, half a scruple.

Mix them, and make them into a Powder.

Which, gave him seven Stools, and brought away the peccant humours. Upon the 16, and 17. all things were well; on the 18. the Patient went abroad without leave, and the great coldness of the Air brought his pains of the Collick again; which, upon using the fore-mentioned Bath, soon ceased. Upon the 19. the Wound being totally healed, cicatrized, or covered with the skin, the Patient being well provided against the injuries of the Cold, walked abroad in publick, without relapsing again any more into the Collick.

OBSERVATION II.

Of a Wound on the Head, with an Inflammation of the Pericranium, and a doubtful Fissure of the Skull.

IN the Year 1638. on the 15. of October, by the command of the Consul, I went into the house of *John Jacob Hecking*, Citizen and Tayler of *Ulme*, whom I found in bed, afflicted with four Wounds on the head; of which, one was in the Synciput, or fore part of the head, on the left side, with a great inflammation of the Pericranium, which tended to Corruption, and a fracture of the Skull: the other three were simple wounds: all these were presently dressed by a Barber, as simple Wounds use to be. Upon the 16. (which was the second day from the hurt) by reason of the great putrefaction, and inflammation of the Pericranium, and the Fissure of the Skull; of the penetration of which, we were yet uncertain. I dilated the Wound in the Synciput with an Incision-knife, in the form of a Cross. *Tab. XXX. Fig. IX.* and bound it up with Astringent Medicines. The third day, the blood being stopped, I scraped the Fissure of the Skull with my paring Instruments. *Tab. XXX. Fig. X.* On the tenth, I scraped upon the chink, or crack still deeper, and yet the mark of the ink made with a pen upon the Fissure remained, which with no sort of paring Instruments could be taken out. In the mean time, by reason of his being bound, and of the flux of humours to his breast; I prescribed this gentle

gentle Potion, that the humours might not be stirred too much.

Take of

Loofening Syrup of Roses, two ounces.

Lenitive Electuary, one ounce.

Black-cherry Water, as much as is convenient.

Mix, and make them into a Potion.

With this he voided seven times bilious matter. On the fifth day looking upon the wound, and the Patient holding his breath, a kind of fer us matter, with some drops of blood, flowed out at the fissure, which was deeply scraped down with the paring Irons. Things being thus; I called to mind the Golden words of our Old Man, in his book of Wounds, Text 22. who saith, *Where the Cleft goeth deep in, nor can be taken out by scraping, in this case, you must proceed to the cutting, or perforating of the Skull.* And Text. 28 *When any one understanding a Bone to be cleft, broken, or bruis'd; and through Error hath not sawed it away, and perforated it, &c.*—Amongst the more Modern Anatomists, and Chyrurgions, Hieronym. Fabric. ab Aquapend. and his Master Fallopius, do judge, that those great and cruel Symptoms are not to be expected; which our Barbers with so much danger to their miserable Patient, do often very imprudently wait for. Fallopius is not solicitous for contusions made on the outward table of the Skull; but declareth, *That those which reach to the middle, can by no means be without danger: by reason that corrupt blood may there be gathered together; which descending upon the thicker Membrane of the brain, may corrode it.* For these Reasons therefore, upon the sixth day I made a hole through the Skull with a Trepan, neer the Fissure, Tab. XXXI. Fig. V. and the hole being made smooth with a Lenticular Instrument, Tab. XXXI. Fig. VII. I apply'd to the thicker Membrane a round piece of Silk dipped in Oyl of Roses, and fastned to a string, Tab. XXX. Fig. VIII. a Pouder and dry lint to the bone, a Digestive to the lips of the Wound, and over it a Diapalma and a Cataplasme: in the evening the Patient was better than in the morning, for the pain of the Adnata of each Eye was more remis, of which, before the perforation of the Skull he much complained.

On the seventh day it was well with him; and he complained of nothing but a small Cough, and a heaviness about his Eyes. The Wound being unbound, looking upon the thicker Membrane of the Brain, there came so great a stink out of the hole made by the Trepan, that I could scarce dress him: Having cleansed the Wound with wool, the thicker Membrane was somewhat slimy, and corrupted on the top; for which corruption, Oyl of Roses seemed not sufficient.

Wherefore in this compound Medicine which might more strongly resist the putrefaction of the Membrane :

Take of,

Syrup of Red-roses, two drams.

Turpentine washed in Betony water, one dram.

Spirit of Wine, six drops.

Mix them into the form of a Liniment.

I dipped a circular piece of Linnen, and applyed it lukewarm to the Membrane, *Tab. XXXI. Fig. VIII.* to the bone, Lint and Pouder of round Birthwoort and Orrice, to the lips a convenient Oyntment, and over it Diapalma; and a Cataplasim (which is made of Bean-meal, Barly-meal, crums of Bread, Red-wine, and Oyl of Roses.) and also the Band, called Cancer, *Tab. XXXI. Fig. X.* Upon the eighth day he was better, and the ill smell of the Membrane was somewhat less.

On the tenth, he took a Potion which gave him six Stools. On the twelfth, by the continued use of the Liniment, the thicker Membrane of the Brain inclined more towards a red colour, than the day before: I drew out that slimy and half-corrupted part of the Dura Mater which was separated on all sides, with the Pincers, *Tab. IV. Fig. I.* through the hole. From the fourteenth, to the twentieth he continued well. On the 20. of November, the Skull threw off a bone, which, because it was separated from the inward Table of the Skull, I drew out with the Pincers and healed up the Wound by the help of the Ceratum Divinum. On the twenty seventh, the Patient being restored to his former health, returned me many thanks for the Pains I had taken.

OBSERVATION III.

Of a Wound on the Head in the Temporal Muscle, with a very large cleft in the Skull, and Inflammation of the Dura Mater.

John Anwander, a Barge-man, of Kirchdorff, in the Year 1633. on the third of January in the evening, was wounded with a broad Sword in his left Temple; so that the Fissure of the Skull was so large, that I could easily lay in my fore-finger. The Patient, the next day, was carried into the house of John George Bauler, a Chirurgion; where

where I presently applyed to the inflamed Dura Mater, an oblong piece of Silk dipped in Oyl of Roses; to the bone, the Cephalick Pouder with dry Lint; to the Wound, a Digestive, Diapalma, (Linimentum simplex was also used with benefit) a Cataplasim, and the Band, called Cancer; of the Digestive and the Cataplasim applyed, this is the description.

Take of,

Rosin of Turpentine washed in Rose water, two drams.

Oyl of Roses, one dram.

The Yolk of an Egg.

Mix it for a Digestive.

Take of,

Barly-meal,

Bean-meal, of each six ounces.

Crums of Household-bread, four ounces,

Pouder of Roses, half an ounce.

Oyl of Roses, three ounces.

Oxymel simple, and Red-wine, of each as much as sufficeth.

Mix, and make them, upon the fire, into the form of a Cataplasim,

In the evening the Patient being forced for the Revulsion of the humours, admitted of this following Glyster.

Take of

The decoction of the Emollient Herbs, ten ounces.

Pulp of Cassia newly drawn out, one ounce.

Hony of Pale Roses, an ounce and a half.

Oyl of Violets, and Camomile, of each one ounce and a half.

On the third day the Median Vein of the left Arm was opened; and five ounces of blood taken away: his dyet was slender, Panado and boyled Barly; his drink was the Magistral Barly water, to the which, for the taking off his thirst, he sometimes mingled two or three spoonfulls of the following Syrup.

Take of,

The Syrup of the juice of Citrons,

Syrup of the sharp Pomegranates,

Tincture of Roses, of each three ounces.

Mix them in an earthen Pot or Glass.

The

The Wound being unbound, seeing that the inflammation of the Membrane remitted; we bound it up again with the same Medicines and Bandage.

The 4th for the bitterness in his mouth, of which the Patient much complained, I prescribed this loosening Potion.

Take of,

Loosening Syrup of Roses, two ounces and a half.

Of Manna, one ounce.

The Electuary of the juice of Roses, two drams.

Blak-Cherry water, as much as sufficeth.

Mix them for a Potion.

With which, the Patient voided very bilious matter. On the fifth, he was better, and the inflammation of the Dura Mater went off. On the 6th I applyed to the Membrane, Linnen Dipped in Syrup of Red-Roses; and added hony of Roses to the Digestive for the lipps of the Wound, and with these I dressed the Wound and Membrane daily, till both were sufficiently cleansed. On the 10. the Wound and Membrane were very fair, and therefore omitting the Linnen, I incarnated the Wound with Berony Oyntment, and cicatrized it with the Ceratum Divinum, on the six and thirtieth day the Patient began to complain of a pricking pain about the part affected, by reason of a Scale of the bone which nature had separated, which I drew out with the Pincers. By these few remedies the Patient being most dangerously wounded, in a short time, without manual operation, was most happily restored.

OBSERVATION IV.

Of a dangerous Wound dividing the Forehead-bone, Cured by the Trepan. I have not made any scruple to transcribe this following Observation from pag. 357. of the later Observations of D. Gregory Horstius.

IN the Year 1626. on the 11th of October, George Seitz. in the Village of Edelhaussen, being about forty years of age, received a great Wound, in the night time, upon the fore-part of his head; and happening presently upon an Empirick, who not observing the penetration, or Fissure of the Skull; strove to heal up the Wound, with Sarcotick Medicines, after his fashion. But the Symptoms encreasing daily, by the perswasion of his Friends, he comes to Ulme: and on the twentieth of October sends for me, and for my most eminent Col-

Colleague, D. *Johannes Scultetus*, a person well versed in Chyrurgical Operations. Considering therefore of the Circumstances, we were afraid of some foul matter under this fair appearance; whereupon forcing open the Wound, we found the Skull divided through both the Tables, and under it a corrupted matter gathered together; which, upon stopping the mouth, and blowing through the nose, issued forth. Having made our prognostick, we declared it necessary to apply the Trepan; encouraging the Patient, seeing he was yet strong enough to admit it. On the 21. of *October*, being purged the day before with Lenitive Electuary, we ordered the skin to be divided according to the tendency of the fibres of the Muscle of the forehead, or eye-brows; not cross-wise, as it useth to be, lest by such a division the fibres of the foresaid Muscle being hurt, the upper eye-lid might fall down, as I had observed it on the seventh of *March*, 1614. upon a fall from a high place, whereby this Muscle, in a certain woman's forehead, was bruised. Making therefore a sufficient incision, the skin was separated from the Skull with the fingers, and the Wound bound up with Lint sprinkled with an Astringent Pouder, and moistned a little outwardly with the white of an Egg. On the 22. the blood being stopped, the Trepan, *Tab. XXXI. Fig V.* was applied by my Colleague. The Dura Mater appeared also somewhat hurt and inflamed, thin corrupted blood boiling out at a little hole of it: we endeavoured therefore daily to help the inflammation, and to wipe away the corrupted blood, not neglecting, in the mean time inward gentle evacuations; as also, the ordinary spare Diet; by which means he was perfectly recovered after a fortnight, or three weeks, enjoying his health now this three years, as well as before. It is manifest therefore, that the use of the Trepan may be admitted, not only in the beginning, but in the progress of a Disease, if the Patient be not too weak. ✓

OBSERVATION V.

Of a Wound in the Head, with a very great depression of the Skull.

IN the Year 1634. In April, *Martin Kuntz* of *Durcha* in *Misnia*, received from a Captain, a Wound with a great Chain upon the right side of the hinder part of his Head, near to the meeting of the Coronal and Sagittal Sutures; which did not only bruise the Pericranium, but also depressed a great part of the Skull: this depression, by

by reason of the great quantity of blood, was not at first taken notice of by Barbour, and so considerable a Wound as this was dressed fourteen days no otherwiset than as a simple one. Upon which, very cruel Symptoms hapned; things being thus, they sent for my most eminent Collegue D. Gregory Horstius, and my self: and looking into the Wound we found a very great depression of the Skull about the Sagittal, and Lambdoidal Sutures, accompanied with a continual Feaver, and a pain and giddiness of the Head; upon consulting therefore we agreed to proceed in the Cure, by laying open the skin, and perforating the Skull. In the evening the Patient being bound, made use of a cooling and moystening Glyster.

On the sixteenth, taking off the dressing, and looking upon the Wound, I touched the depression gently with my Finger, and the Patient presently complained of a pricking pain, I made a mark in the skin of the Figure of a Cross, and cut it open with a streight Incision-Knife *Tab. II. Fig. XI.* I separated the Pericranium from the bone with my Fingers, and the Wound being dilated, I bound it up with Hemp hard dipped in a Medicine made of the astrigent Pouder described by *Galen*, stirred up with the white of an Egg.

On the twenty seventh, the blood being stopped, and the stupes removed, we found so great a depression of the Skull, that we were forced to perforate the Skull seven times with the Trepan round about the depression, and to cut out the spaces between the holes with a large pair of cutting Pincers *Tab. XX. Fig. I.* to be seen also in the Skull, *Tab. XXXII.* These things done, I smoothed the edges of the Skull, on all sides with a lenticular Instrument *Tab. XXXI. Fig. VII.* I applied to the Dura Mater a round piece of Silk dipped in Oyl of Roses, to the bone, Pouder of the roots of round Birth-wort, and Flower-de-Luce of Florence and dry Lint, to the lips Lint, covered with a Digestive made of Turpentine, washed in Plantain-water, the yolk of an Egg, and Oyl of Roses, and upon these Diapalma, and a Cataplasin, which consisted of the crums of Household Bread, Barley-Meal, Bean-Meal, Rose-flowers, Betony-flowers, Oxymel Simple, and Oyl of Roses, and bound it up with the band, termed by *Galen* *Cancer*.

On the twenty eight, four ounces of blood were taken away from the Median veine of the left Arm, his Dyet was Panado, and Barley-water, mixed with the juice of Pomegranates.

On the thirtieth, for the bitterness of his Mouth (of which almost all who are wounded on the Head do complain) he used this Syrrup.

Take of

Loosening Syrup of Roses two ounces,

Lenitive Electuary one ounce,

Citron seeds half a dram,

The

The decoction of the Flowers and Fruits as much as is convenient.

Mix them. and make them into a Liquid Syrup.

Whereby he voyded five times bilious and Froathy matter. Upon the first of *May*, the Patient slept quietly, and the Dura Mater about the Sagittal suture was slimy, and almost putrified, and therefore I applied a Liniment, of Syrup of red Roses, spirit of Wine, and Turpentine upon a piece of Silk, and dressed the Wound with the other remedies.

On the second, his thirst being great, he took the following Syrup.

Take of

Syrup of the juice of Citrons one ounce.

Syrup of the juice of Sorrel,

Syrup of Pomegranates with Vinegar of each half an ounce.

Black Cherry-water,

Strawbery-water,

Borage-water of each two ounces.

Mix them together for a draught.

On the third, holding his breath, and stopping his Nose a great quantity of yellow matter flowed out of the Wound; afterwards the Wound being cleansed, a black piece of bone came in sight near to the Lambdoial Suture.

On the fourth, his thirst was less, and I extracted the black piece of bone with the Pincers.

On the fifth, I washed the Wound with the Decoctum Divinum, by reason of the stinkingness of the bone.

On the sixth, the ill smell abated, and for the better drying the Wound, I applied this Digestive.

Take of

Turpentine washed in Scordium-water two drams.

Pouder of Myrrh,

Round Birth-wort,

Orris, of each a scruple.

Hony of Roses strained as much as sufficeth to make it into the form of a Liniment.

On the seventh, the Patient was well, but his belly not being loose enough, he made use of this Glyster.

Take of

The common decoction eight ounces

Elect.

Electuary of Diacatholicon one ounce.

Oyl of Violets.

Oyl of Camomile, of each an ounce and half.

Mix them together for a Glyster.

From which he had three evacuations. On the eight, the Patient slept quietly. On the ninth, the Dura Mater was very red; out of, which while I wiped it with Cotton, there flowed some drops of blood; From the tenth to the fourteenth, he went on well. On the fifteenth, being bound, he swallowed *Bolus's* of Lenitive Electuary one ounce, made up with Sugar with which he had four stools. On the twentieth, red flesh grew upon the Dura Mater, and between the two Tables of the Skull. On the twenty fourth, all things went well, and for the greater strengthening of his Head I added Red Wine, and Wheat-Bran to the former Cataplasme. On the thirtieth of *May*, a great scale of the Skull cast off, and I applied to the Wound, now filled with solid flesh, the Ceratum Divinum to cicatrize it. On the tenth of *June*, the skin covered the Wound. On the eleventh, the Patient went abroad. On the twentieth, being restored to his former health, he laudably exercised his Military employment.

OBSERVATION VI.

Of another Wound on the Head, with a very great going in of the Skull.

IN the Year 1636. On the eighteenth of *November*, at nine in the morning. A Country-man of *Idelhaufe*, of a hot and moist temperament about the thirty second year of his Age: for I know not what contest had before a Judge concerning the limits of a Field, was struck by a Smith with a Mattock, upon the right-side of the fore-part of his Head, so that he not only fell backward to the ground, and the blood gushed out of his Nose, but he lay there as a dead Man, without sense or motion; at ten of the Clock the Wife of him that was wounded, fetched a Chyrurgion of *Ulme*, who bound up the Wound with *Galen's* Astringent Powder, and the white of an Egg; when indeed considering the cause, which was so violent, he should have dilated it cross-wise. On the nineteenth, at four in the Afternoon, he was carryed to *Ulme* in a Litter, and about seven I found him, with a great pain of his Head, a Feaver, faintings, and a swelling

ling of the right eye; whereupon I prescribed him a strengthening Water, composed as followeth.

Take of

Black Cherry-water,

Sorrel-water,

Borage-water, of each an ounce and half.

The Anhalt Cephalick Spirit, two scruples.

Pearl prepared,

Red Coral prepared,

The Stone of Chrysol prepared.

Tablets of Pearl half an ounce.

Mix them

Of which he took a spoonful now and then, for thirst and sickness in his Stomach: in the evening he took half of this Julep.

Take of

The Syrup of the juice of Violets an ounce and half,

Tincture of Roses with the Julep four ounces.

Endive water two ounces.

Pomegranate-water four ounces.

Mix it for two doses.

On the twentieth day, two hours before noon, he complained of a very great pain of the Head; the bandage being taken off, and the Wound uncovered, and looked into, I diligently searched out the breadth and depth of the Wound, with the round end of the Probe, and found the Skull to be very much depressed.

Whereupon the same day I opened the Wound in the Figure of the Letter X or a Cross with *Celsus* his Spatha, or Incision Knife sharp on both sides. *Tab. XI. Fig. I.* and the Membrane being separated from the Skull with the Nails; for the stopping of the blood, and keeping the Wound open, I applyed a stupe of Hemp-hards moistened in the white of an Egg, beaten up, and sprinkled with the Astringent Pouder; and for hindring the inflammation, I anointed the whole Head and Neck with Oyl of Roses, and a Bolster of Linnen four times doubled I bound to the Wound with the Rowler, *Tab. XXXI. Fig. X.* at Night he drank the cooling Syrup, and made use of Barly-water for his Drink, and Panado for his Supper.

On the 21. at ten of the Clock before noon, the bloud being stopped, I took off the Rowler, and removed what was to be removed; then looked into the Wound, and found not only a depression in the bone of the Synciput, at the distance of a thums breadth from the Co-

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ronal Suture, and two thumbs breadth from the Sagittal; but also two branches of a Fissure made by the force of the blow. The former of which, reached from the depression to the right eye, passing through the Coronal Suture; and the latter reached to the left ear. Things being so confused, I applyed the Pouder of round Birthwort and Orris to the bone; to the lips, a digestive Oyntment, and over it Diapalma: and for the great Tumour of the right eye, I ordered the following Cataplasme.

Take of,

Barly-meal,

Bean-meal, of each six ounces.

The Crums of Household-bread, two ounces and a half.

Pouder of Roses,

Pouder of Betony, of each six drams.

Oyl of Roses, three ounces.

Oxymel simple, as much as sufficeth.

Mix them.

Two hours before dinner, he took Linitive Bolus's, made of an ounce of Linitive Electuary and white Sugar. On the 23. the inflammation being greater; as also the pain, giddiness, and swelling of the right eye: I was forced to perforate the Skull with the Trepan, neer to the Coronal and Sagittal Sutures; and being perforated, I made the rough parts of the hole smooth with the Lenticular Instrument; and putting under the Levatorie, I reduced the depressed bone, *Tab. XXXII. Fig. II.* I put a piece of Silk dipped in the Oyl of Roses upon the Dura Mater, tied fast to a string; the rest of the Wound I bound up with the Pouder and dry Lint, a Digestive, Diapalma, and the Cataplasme; not neglecting to anoint the neck, and the parts neer the wound. In the evening the Patient was better than in the morning, before the Skull was perforated; and he made use of his cooling Syrup. On the 24. at ten in the morning, the Patient being better than he had been the foregoing days: for cooling him, and for revulsion, the Median Vein of the right Arm was opened, and four ounces of blood taken away. On the 25. the pain being appeased, he took a Potion, to relieve him from being bound, which is very hurtful in Wounds of the head.

Take of,

Lenitive Electuary, one ounce.

Loosening Syrup of Roses, two ounces.

Black-cherry Water, as much as sufficeth.

Mix them, and make a Potion almost free from all heat.

The

The Wound, and right Eye pleased me well : the Patient took his cooling Syrup at night. On the 26. he said that he had slept very quietly the whole night, and found no pain of his head or right Eye. On the 27. he rested quietly again, and found no trouble from the Wound: some drops of a serous matter flowed out at the thicker Membrane of the Brain : for the better drying it up, I applyed a Liniment of Syrup of Roses, Turpentine, and Spirit of Wine upon a peice of Silk, with the Cataplasme; instead of Oxymel Simplex, I mingled rough Red-wine, the better to strengthen the head. On the 28. the Patient was as well as the day before; but I perceived the Membrane of the Brain to be black on the outside, by reason of the Contusion. On the 29. being bound, he took his Laxative Potion, which gave him three stools : the Liniment had caused the Membrane to tend to Suppuration, and after the wiping away of the black spot with Cotton, a small effusion of blood it appeared red. On the 30. he seemed to be very well; but complained of a beating pain about the forehead, and temporal Muscle. On the 2. of December the pain ceased of it self, and the Patient thought himself strong enough to walk without a staff. The purulent matter which flowed from the Dura Mater, through the hole made with the Trepan, was white, and well concocted. Instead of the Liniment and Digestive, I applyed to the fleshy Membrane and lips of the Wound, Oyntment of Betony, mixed with the yellow Cerate.

Take of,

The Juice of Betony, three ounces.
Burnet,
Woodbinde,
Great Comfrey, of each half an ounce.
Malmsey, five ounces.

Boyl away the Wine, and then add,

Turpentine, two ounces.
Sheeps Suet,
Oyl of Roses, of each one ounce.
Pouder of Mastick,
Myrrhe,
Mummie, of each a dram and a half.
Virid. Aëris, or Verdigreece, two drams.
Wax, as much as sufficeth.

Mix them together, and make the Betony Oyntment.

On the third and fourth, the Patient continued well; and I drew
Q out

out with the teeth of the Nippers, a little piece of the Dura Mater, which was separated, and applyed the same remedies as in the foregoing days. On the 5. the Dura Mater was covered over with red flesh, which *Celsus* accounteth a very good sign, who in his eighth book writeth, *That when all goeth well, the flesh beginneth to grow from the Membrane it self*. On the 7. day, for the farther drying it, I applyed the Ceratum Divinum to the Dura Mater. On the 8, 9, and 10. the Patient continued well. On the 11. he slept not at all. On the 12. he complained of pain of his head. On the 13. he slept a little. On the 16. with my Brode somewhat bended, I came between the first and second Table of the Skull; and separating a part of the bone with the Lenticular Instrument, I drew it out with the Pincers: I took another bone skaled off from the forehead with the toothed Pincers. The 19, 20, 21, and 22. he continued well. On the 23. he complained of a pain on his forehead, with a heaviness, for which he took the former Potion, which wrought five times: But drinking cold water plentifully after dinner, he complained of a pain in his stomach. On Christmas day eating much flesh meat, there came a new flood of humours upon the Wound; he was feaverish all over, and the flesh appeared black in the Wound: therefore forbidding him flesh-meat, I allowed him only Panado. I purg'd him gently, kept him to a slender diet, and took off the black excrescence of flesh with Burnt-Alum; and in the space of five days he was better. In the Month of *January* I Cicatrized the Wound with the Ceratum Divinum, and restored him to his former health with the forementioned Remedies.

The Ceratum Divinum is this.

Take of,

Gumme Ammoniacum,
Galbanum,
Opopanax,
Bdellium,
The Pouder of Myrrhe,
Frankincense,
Mastick,
Long Birthwort,
Verdigreece,
Calmey, prepared,
Lapis Hæmatites, of each an ounce,
Litharge of Gold,
Common Oyl, of each one pound.
Yellow Wax,

Turpen

Turpentine, of each six ounces.

Mix them, and make them into a Cerate.

This Conglutinates Ulcers very speedily, and hindreth the growing of any bad flesh.

OBSERVATION VII.

Of a Contusion of the head, causing Death an hundred days after, by omitting the use of the Trepan.

A Country fellow, very strong, and who had never been sick in his life; about forty years of age fighting with others at Fisticuffs, sustained a great number of violent blows upon his bare head: this was done on the 11th of November, 1630. he did not much regard this; and for some days went about his ordinary imployment, although he felt no small pain. Upon the 18th day he began to be weaker, and to feel his pains more violent; the motion of the lower Jaw was so difficult that he could scarce open his mouth, or put in meat; and at length, without pressing the Jaw down with his hand he could not at all. A Country Barber being sent for, began to cure him with I cannot tell what Remedies; but all things growing worse, an experienced Chyrurgion was called after four days: viz. upon the 22d of the same month, from one of the Neighbouring Towns. He applied divers outward discussing Remedies, and did somewhat mitigate, but not remove the pains: which did more and more settle themselves all over the head, and back-part of the neck, and grew so violent, that he could neither move his head, nor lift up his eyes; besides these, giddiness, want of sleep, sometimesaving, and the weakness of all parts did so afflict him, that he could scarce stand upon his feet; much less walk, and sometimes not so much as lift up his hands to his head.

At last a Physitian was sent for upon the 7th day of December; who seeing him taken out of his bed, placed in a chair, and looking so grimly, was not a little surpris'd, and feared that Convulsions, or other more dangerous Symptoms might presently happen. In the farther search and examination for the discovery of the Signs, and Symptoms of his Disease, he felt about his head, that he might know in what part it most pained him; and found a softness on the upper, and backward part of his head, which gave way to his fingers, and an evident pit remained in his skin; and therefore judged that there was an

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Effusion, and gathering together of congealed putrid blood under the Muscous coat, which ought to be evacuated by laying open the skin, least the bone of the Skull might be corrupted thereby, the Pericranium inflamed, the forementioned Symptoms increased, and Death it self succeed.

This was performed by a Chyrurgion then present, and the skin cut cross-wise with a Razor, the Incision being made down to the Pericranium, black blood congealed, and some water, flowed out. By this opening of the skin, the Symptoms were in some measure mitigated, and much of the pains of the head remitted. Concerning this, others, especially (those who had done him this injury) began to speak ill, and as if the Incision had not been necessary, and that it had done the head much hurt: at which, the Physitian somewhat moved who knew him to be in no small danger, by the severity of the Symptoms, suspected also that there might be a Fissure of the Skull made by the blows, (for he could not be well assured whither they had not made use of Weapons, and Clubs, as well as their Fists.) or that the blood collected together under the skin, might infect the Skull; or that an inflammation rising in the outward parts, near the Sagittal Suture, a part of the corrupted matter might not penetrate inward through the Suture; or whether some Veins in the Brain, or its Membranes were broken, from which the blood issuing out, and turned into corruption, might not stir up those cruel Symptoms; and therefore he perswaded them to separate the Pericranium from the Skull, and also to Perforate the Skull if the Symptoms went not off: he desired also, the Conference with another Physitian, one who was much experienced in Chyrurgery, who being sent for, and examining all the circumstances, did totally agree with him; and advised, for the greater caution, that the Pericranium should be separated, otherwise they could never promise to themselves any security. Which he confirmed both by reason and experience: but to this, a third Physitian and a Chyrurgion, who were brought in by the contrary party, would not consent, because no greater Symptoms at that time, nor any manifest sign of the Skull being hurt appeared, and from hence pronounced him free from all danger; and perswaded them, that the Wound, which for some days had been kept open, should be healed up again, and the others, that they not seem to be willing to add unnecessary afflictions, consented to it. The Wound was therefore healed up: but from that time the Patient began to be troubled with great pains all over the head, but chiefly in the inward part, where the Incision was made, day and night giddiness and great weakness afflict him; he passeth the nights without sleep, loaths his meat, suffereth a continual heat in his upper parts, while the lower shake and are cold. On the fifth of February,

bruary, he felt a great Defluxion through the left part of his head, as if warm water poured down; the humours slipping down by the throat, and rushing into the breast, where they caused so great a heaviness, that he thought presently to be choaked; but after a few hours they were discussed again. A Physitian being present, thought it at last necessary that the Wound should be opened and dilated, but another would not consent to it, but pronounced it to be free from all danger. But the Patient grew every day weaker, and wasting away daily, dieth.

Hence two questions arise. First, Whether the opening, and cutting of the Skin on the head, performed by the Chyrurgion, then present, were necessary. The second, Whether blows on the head be dangerous and mortal. To the first I answer, That not only the Incision in the Skin of the Head, made by the Chyrurgion, but also the Dilsection of the Pericranium, and the Perforation of the Skull by a Trepan, was extremely necessary; by reason of the appearance of these urging Symptoms, which did indicate some hurt under the Skull. To the second, That Contusions, with, or without a Fissure of the Skull, are never to be slighted: we see they are able to cause death after an hundred days; especially when the Skull being broke, it is not opened with the Trepan, to purge that matter which descends by degrees through the Fissure to the Brain, and Dura Mater. These Questions were proposed to me by the most eminent *D. D. Jacobus Eggoldus* of *Memmingen*, and the four following Observations will confirm my Answer: of which, the two former, as communicated to me, I here Insert.

OBSERVATION VIII.

Of a Contusion of the Brain, in the ninth week Destructive on the sudden.

IN the year 1636. in the Month of *December*, I received an account from the faithful Relation of my Collegue, the most eminent *D. Johannes Georgius Gockelius*, Dr. of Physick, and Philosophy, and Physitian in Ordinary to the Republick of *Ulme*, by the occasion of our most grievous *German War*, (in which the floods of Generous blood spilt on both sides, have been the occasion of the deserved Prayers, and Tears of the Devout.

A certain Souldier of the Emperour's, an *Austrian*, in those Excursions, and small Parties, in which they come to Hand-blows,

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was

was struck, by a *Swedish* Horse-man, two great blows, with a Battle-Axe, on the hinder part of his head; in such sort, that being overcome, and thrown down to the ground, he was taken Prisoner by the contrary Party; and the Sign being given for their retreat, he, with other of his Fellow-Souldiers, was brought in, half dead, unto the Hospital at *Ulme*.

All these being put into the hands of the Chyrurgions, and Physitians appointed by our Senate for the benefit of the sick; among whom, *D. D. Gockelius* was one who was present, were so well looked after, and provided with necessary food, and with inward, and outward Remedies, that many of them returned home safe and well: but our Patient, of whom we are speaking, being bruised (but without any bloody wound), without any Fissure, or any considerable depression of the Skull; about nine weeks being past over, when he could both go and speak very well; felt no longer any pain from the Contusion; and for recreating himself, was often pleased in walking about; was thinking of returning into his own Country, and upon the first occasion had determined to go away with the Bark: taking his rest in the night safe and sound, to all mens thinking, he died in his sleep.

That the cause therefore of so unexpected an accident might not altogether lie hid; my fore-mentioned Colleague humbly desired the Governours of the Hospital of *Ulme*, that they would grant him power and liberty of looking more accurately into this matter, and of searching into the foundation and beginning of it, by having the Skull opened by the hands of the Chyrurgions; by considering the Membranes encompassing, and looking into the substance of the Brain itself.

The Governours willingly granting it; he caused the Skin to be cut cross-wise, and the Pericranium to be separated from the Skull, according to the usual manner, and the Skull to be sawed round; then proceeding in his Dissection, by diligent inspection and consideration of all parts, he could not find any Fissure in the Skull, nor the least footstep of any Depression whatsoever; but in the substance of the brain, just under the blow, a large Putrefaction, like rotten Apples, of a fingers breadth, and reaching almost down to the foremost Ventricles of the Brain, and some corruption of the Pia Mater: all other parts untouched.

Communicating our opinions in this case, we could no ways doubt of the external cause, and violent percussion, which brought both sickness and death to this Souldier; but this threw in some doubts and scruples worthy of our Consideration, and Admiration.

First, Why the force of the blow did not hurt the neerer parts, rather than those which were farther off, although many exam-
ples

ples of the like nature have been experimentally found true?

Secondly, How those temperate and clear Animal Spirits can be so highly disturbed, as to admit of, as it were in a moment, a total blasting, and destruction of the Brain?

And Thirdly, Why that great Putrefaction in the Brain it self, and communicated, to the Pia Mater, should never cause any pain in the inward parts, or any way deprave the inward or outward senses; but on a suddain, take away all sense, and life it self?

Let Chyrurgions therefore learn by this Observation, not to make slight of any blows on the head, although they find the parts containing the brain not hurt. Never to promise, in such cases, an undoubted Cure; nor to permit any irregular diet; but with caution, and prudent diffidence, so to treat their Patients, that they may be true Lights in our sacred Art.

OBSERVATION IX.

Of a going in of the Skull with a pricking of the Dura Mater for want of Instruments, destroying the Patient.

THE forementioned D. D. Gockelius declared to me, that in the Year 1633. on the 23^d of February, being sent for to Bibrack; where he was between hope and fear, by reason of the troubles of the War, that a Townsman was plunder'd in his own house, by the enemy invading him in hope of booty; and was struck upon the top of the head with the Hilt of a Sword, without a bloody Wound; but so as the bone of the Skull was much depressed, like a deep hole, and did grate upon the Dura and Pia Mater; and caused a Feaver, with some distraction of his mind. This Physitian in Salary being sent for, attempted to Mollifie the Feaver, and other Symptoms, by a Lenitive Potion, opening a Vein in the arm, and some alterations. and moreover, contrived all manner of ways to lift up the Depression, and bring it to its natural state with those, with the ordinary Instruments which they had there, but all in vain; for want of the Trepan: which, by reason of the insecurity of the ways, could not so soon be brought thither: so that this most innocent man the next morning departed this Life.

The defect of those necessary Instruments, delineated and described before, and the administration of the due Manual operation omitted, took away all hopes. We may also take notice, That if the first day

he were wounded, the skin had been laid open in the form of a Crofs, and, the blood being stopped, the Skull had been perforated with a Trepan the same day, that the bone which pricked the Membranes of the Brain might have been taken out, the Patient probably had not dyed.

OBSERVATION X.

Of a Vertigo in a Sheep, proceeding from an abscess in the Brain.

IN the Year 1634. December the 24th. Being in the Shop of Nicholas Kite, he made mention of his Sheep, among which, one was troubled with a Vertigo, or Giddiness, the Germans call it *Wirbling*: this Disease one who dealt in Sheep affirmed to be incident to the fairest of the Flock; and that hereby their whole Brain would be turned into Water, and then they would fall down dead on a sudden. The Chyrurgion therefore commanded that one of these Sheep which was weakned with this Giddiness, and turning round, should be killed, and sent me the Head to my House, that I might open it, and diligently search into the reason of this Symptome.

Whereupon opening first the Skull, and looking into both the Membranes, the substance of the Brain, and the first and second Ventricles, I found not one drop of any Water, and then searching into the third and fourth Ventricles, there was also no sign of any Water, but the third was filled with a great quantity of Blood; afterwards I lifted up the Organs of smelling, with the bony handle of my Anatomical Knife, and on the left-side between the Brain and the Pia mater, I found an abscess, like the Bladder of a Fish, full of very clear Water, and near to the left-eye the substance of the Brain black; I wondred that the Brain it self being affected in this Disease, the Sheep should not labour under an Apoplexy, or a Palsy, rather than a Vertigo.

OBSER

OBSERVATION XI.

*Of a Contusion of the Head, upon which hapned a Vertigo,
and an Apoplexy.*

IN the Year 1645. On the 25th. of *January*, I dissected the Head of one of my own Sheep, which dyed of the like Vertigo, and taking off the Skull, I examined the substance of the Brain with all its bruifings; and presently on the left-side, as it were of the backward part of the Head, under the Dura Mater, I found a Bag of the thickness of a Fishes Blader, filled with Water, and little Worms, such as are bred in Cheese: for it began to putrifie at the bottom. This Coated Tumour being bigger than a Hens Egg, had so insinuated it self into the substance of the Brain, that it did somewhat press upon the third Ventricle. This Sheep, as the Shepherd reports, turned her self round about towards the night all that day she dyed. That which hapned to Sheep, may happen to Men, and women. I observed together with *John Buraus* Barber, and *George Riedlin* Chyrurgion, the same effect in the Brain of *Maria Schwarbmäennin*, who after a Contusion of the forepart of the Head which I cured, for a whole year complained very much only of a giddiness. And one time sitting at Supper, she was taken with a violent Apoplexy, and dyed suddenly. Her Parents desired me that I would open the Skull, either for the taking away, or else for confirming the suspicion they had conceived, that one had poysoned her. The Skull being opened, and the Brain looked into, I found a Tumour on the left-side, both as to its coat, and matter contained in it, not unlike the former described, of the bigness of an ordinary Hens Egg, and partly compressing the third Ventricle. I gave this answer to those, who demanded what might be the cause of this Tumour contained in a coat, and perhaps no ill one, that the Brain being violently shaken in that part, had contracted a weakness, and the nourishment flowing toward it, was converted into that Matter, and not into the substance of the Brain. From whence again it was evident, that blows on the Head were very much to be looked after; there being scarce any of so perspicacious a Wit and Judgement whatsoever, that the disposition of the inward parts to corruption may not sometimes escape his knowledge.

OBSER

OBSERVATION XII.

Of a Wound of the Head, with an Incision of the Falx, Dura Mater, and Pia Mater.

IN the Year 1635. *Michael Schuelder*, a Souldier of *Ulme*, and belonging to the *Præfident of Elching*, was wounded with a Broad-Sword, by a Souldier of the Emperor's, on the top and back-part of his Head; the wound on the back-part of the Head was simple, but that on the top of the Head, not only with a Depression and Fissure of the Skull; but also with injury to the Dura Mater, and Falx, which receiveth the branches of the Carotidal Artery, and Jugular Vein. These two Wounds an unskilful Barber, dressed after his fashion, and cured according to the first intention; but what becomes of it? the miserable Patient from hence suffereth most fierce pains, accompanied with a Phrensy, a Convulsion of all parts; and at length an Apoplexy. Things being thus, six weeks after he was hurt, I was sent for by his Wife yet living, and found him perfectly in an Apoplexy: the cause of which depended upon the obstruction of the Nerves, from a great quantity of Matter, which ought to have been purged through the Wound: and so great was the Mass of black and stinking Matter, that forcing a passage through the Nose, and Palat; the Apoplexy went off, and gave me certain Indication of the hurt and Fissure of the inward parts: feeling with my Finger upon the solid parts of the top of the Head, I found a great hole, evidently demonstrating the depression of the Skull; giving my Prognostick therefore, that the Patient was in a great deal of danger. I caused a Lenitive Glyster to be given; and after that had done working, the Cephalick vein of the Arm to be opened. On the second day I opened the skin, and the Pericranium in the form of a Cross with an Incision Knife, *Tab. XI. Fig. I.* I applied astringent Medicines to the Wound dilated, which in performing operations of this nature, it is very necessary should be wide enough. The third day the blood being well stopped, I perforated the Skull five times, with the Trepan of *Aquapendens*, about the circumference of the Depression, and through every hole, I let down a piece of Linnen dipped in Oyl of Roses, to the Dura Mater. I sprinkled the Bone with the Pouder known to you, and covered the lips of the Wound with a Digestive, Diapalma, and Linnen, thrice doubled, dipped in rough Wine hot, and a convenient Rowler; on the fifth I cut down
the

the space between the holes, with the turning Saw, *Tab. XXXII. Fig. I.* This part of the Skull depressed, being now freed from the intine and found part: this being corrupted from within as farr as the middle between the two Tables, I took out with the Pincers: and, first, by putting under a preserver of the Membrane, I broke of the edges, and rougher parts, with the Pincers, *Tab. XXXII. Fig. III, IV, V.* This done, with my Cross dividing Instrument, *Tab. II. Fig. X.* I depressed the Brain gently, and a great quantity of purulent Matter came out that way. To the Dura Mater (whose Falx being cut transversly, the blood continually issued out) and to the Pia Mater also, I applied a piece of Linnen answerable to the hole, dipped in the Oyntment of *Heir. Fabritius*, to the Bone the Pouder and dry Lint, to the lips the Digestive, and over it Diapalma, a Pultiss, and the Rowler. In the evening the Patient was better: and the purulent matter ceased from discharging it self down by the Nose and Palate. On the sixth I looked again upon the Membrane, and Falx, and found that the blood issued out, which by reason of the deep Scituation of the Vessels could not be stopped: for Vessels cut in sunder do require the immediate contract of Astringent and consolidating Medicines, and some compression; both of which were impracticable in this part, for fear of a new Haimorrhagy, and Apoplexy; whereupon I declared to the Wife, and Kindred of the Patient, that the Wound without danger of his life could not be healed: for the Wound being totally cicatrized, and the matter which used to issue out, being turned into Quitter, it would again excite the same Symptoms, which would be the cause of his death. Giving this prædiction, I dressed the Bone, and the lips of the Wound, as I wont, and left open the Wound at the meeting of the Coronal, and Sagittal Sutures, like an Issue in the Head, through which the matter gently came forth; and the Patient went about his business for half a year together; but being overtaken with Wine, he neglected the Ulcer, & suffered it in the space of 24 hours to be healed up: so that not one drop of the matter could come out, and the forementioned Symptoms, not immediately happening, both the Patient and his Wife, did not doubt but he was in most secure health. Till after three Months taken with those Symptoms again, he dyed suddenly. After his death if I had opened his Skull with a Saw, without doubt I should have found matter under the Skull: from this observation it doth plainly appear, that the perforation of the Skull may be performed often with great benefit, not only in the beginning, but also a long time after the hurt. It will be also evident by the following Observation, that bad Symptoms, sometimes appear immediately, and sometimes after a hundred days; which if the Skull had been opened in the beginning, without all doubt never had hapened to the Patient.

OBSER-

OBSERVATION XIII.

Of a Wound on the Head cured by the Trepan after twenty eight weeks.

IN the Year 1625. In the Month of *December*, a Kinsman of D. N. *Tishlers* General of the Horse, received a Wound on his Head, at *Milan*; which a Chyrurgion, by reason there was no appearance of any great Symptoms, healed up in the space of fourteen days. In the Year 1630. In the Month of *March* he came to *Ulme*, complaining of a great pain all over his Head, of a giddiness, dimness in his Eyes, and a Palsy of the right Arm. Upon suspicion there was of a Fissure of the Skull, I cut the skin, and Pericranium in the shape of a Triangle, above twenty eight weeks after he was first hurt; and on the twenty first of *March*, in the House of *Nicholas Reutte*; I perforated the Skull twice, upon the side of a very narrow Fissure, and cut down the space between the holes with my turning Saw: the matter being discharged which descended through the Fissure under the Skull, those Symptoms ceased, and the Patient was thus in the space of one Month most happily restored to his former health.

OBSERVATION XIV.

Of a Fissure, and Depression of the inward Table of the Skull; the outward being found.

IN the year 1626. in the Month of *July*, I gave in an account in writing to the Sheriffs of *Ulme*, how that going to visit *Bartholomew Sckaffer*, a Souldier of the Emperour's, who had been Wounded on the head by the Boors of *Altenstadt*, and finding him dead, I diligently enquired into the cause of his death, which happened upon the 20th day, in the presence of many who were there; and found it to be a Wound on the right side, about the Lambdoidal Suture, with a hurt, and going in of the second Table of the Skull, the first being found, which had been healed up by Barbers: for seeing that in this hurt of the Skull, the matter which slipped down to the Brain, by a hidden chink, without the help of the operation

ration could not be discharged, and much less the Skull, which continually depressed the Brain, could be raised up again, without the Instruments. an Abscess bred under the Skull; which, first bringing him into a Fever, and Phrensie, broke into the right Ventricle of the Brain, and filled it, and with sudden Convulsions killed him: whose life, in the beginning of the hurt, by the Perforation, and Elevation of the Skull, (both which operations are performed daily in Italy, without any danger) might, without all doubt, have been preserved.

And because that in our Territory, not this man alone, but many others formerly, have perished, either out of the neglect or ignorance of this manner of operation, the Senate of *Ulme* hath given order; That the Barbers, as much as possible, should be informed how to behave themselves in such dangerous cases, that Patients, for want of this help, may not be compelled to lose their Lives.

OBSERVATION XV.

Of a Wound of the Head, Mortal upon drinking of
Wine after the opening of the Skull.]

IN the Year 1634. on the 19th of May, *Henry Hebich* was wounded on the Head, by Coopers, about the Coronal Suture, and Temporal Muscle; which was dressed at the first by *Nicholas Reutte*, who called me the third day; out of whose Wound I presently drew a piece of the Skull, being separated on all sides, with the Pincers. On the 4th day, by reason of the great Inflammation of the Wound, I applied convenient Remedies till the 9th, at what time the Patient began to complain of a heavy, and pricking pain of his Head, a most certain sign that there was purulent matter under the Skull, and that the Membranes of the Brain were pricked by the bone. On the 10th the Parents of the sick man, sent for the most excellent, and most eminent *D. Gregory Horstius* to consult with me, who advised to open the Skull with the Trepan, whereby the matter under the Skull might get out, and the Shiver of the Bone might be drawn away. On the first of June, I perforated the Skull in the presence of *D. D. Horstius*, and found the Membranes of the Brain inflamed. On the 3d day, after the opening of it, the matter not being sufficiently evacuated, by reason of the great Inflammation of the Dura Mater; by the consent, and in the presence of *D. D. Gregory Horstius*, and *Johannes Regu-*

Regulus Vellinger, I opened another hole with the Trepan, and cut down the space between both the holes with my turning Saw. After the second Perforation, I took out a little bone separated from the inward Table of the Skull, which did continually prick the Brain, and its Membranes: which being taken out, the pricking pain ceased for some days; till by drinking of a great quantity of Wine, an Abscess was generated in the substance of the Brain, which caused a Fever, with loss of his Reason, and then Convulsions all over, and Death; for on the 20th of June he departed this Life.

OBSERVATION XVI.

Of a Contusion of the head, causing Convulsions at the New of the Moon, three Months together. —

M*arcus Beck*, the Son of *Daniel Beck*, in Year 1629. upon the 15th of November, fell upon his head, and presently shewed the swelling to his Parents, on the right side of the fore part of his head neer to the Coronal and Sagittal Sutures, which caused pains of the head, and general Convulsions: being sent for, I gave inward Remedies, whereby the Convulsions ceased, and almost dissolved the Tumour by applying to it the Skin of a Lamb newly killed: yet notwithstanding, about the New Moon, the Boy complained of a pain of the head, which was accompanied with the former Convulsions. After two Months the swelling of the head was every day bigger, and the same Symptoms infested the Boy about the New Moon, in the 3d, and 4th Months: being at length sent for by the Parents, I looked upon the Tumour, and declared to the standers by, that these Symptoms in my judgment were caused by a sharp matter which did draw and corrode the Pericranium; neither was I deceived in my opinion, for making an Incision with my Knife, *Tab. II. Fig. II.* in the form of a Cross, *Tab. XXX. Fig. X.* down to the Skull; and evacuating the matter, I layed open the Wound. The next day, the flux of blood being stopped, I found the Skull rough, and black. On the 3d, scraping the Skull first, half way through, I applied the Cephalick Pouder and drie Lint, till it was covered with very good flesh; but the wound I dressed, first with Digestives, then Cleansers, next Incarnatives, and lastly Cicatrizers. By this means, the Boy being about seven years of age, was restored to his former health in twenty days after the Incision, and an hundred and twenty after he received the hurt, being yet alive, to shew the marks of the Incision.

OBSER-

OBSERVATION XVII.

Of a Wound on the head, with a Hewing, or Chopping away of the outward Table of the Skull.

IN the Year 1631. on the 4th of November, a Noble Senator of Ulme, was Wounded on the top, and back part of his head, with the loss of the Skin, and plaining away of the Cranium, to the bigness of a Dollar, or Five-shilling piece of Silver. *Nicholas Reutte* filled up the Wound presently with Astringents, and I caused six ounces of blood to be taken from the Cephalick Vein, after the working of a Laxative Glyster. On the 5th, the Wound being unbound, and the bone scraped away to the middle, I sprinkled it with the Cephalick Pouder and put on Lint; I applyed a Digestive to the lips of the Wound, and over that Diapalma, and a Pultise to hinder any Inflammation. On the 3^d day, by reason of a bitterness in his mouth, he took a Potion purging the Gall, and voided often that bilious matter, which made his Mouth, Throat and Stomach bitter. On the 5th he was better. On the 8th, py reason of being bound, he complained much of a pain of the head, about the Wound; for which, I admitted of a Laxative Glyster, which coming away, his pain also ceased. On the 9th, the Wound digested white and equal quitter; upon which, I mixed some things cleansing with my Digestive. On the 12th, flesh began to grow upon the Skull; whereupon I applyed an Incarnative Medicine, made of the Ceratum Divinum, and Oyntment of Betony, till the Skull, by the benefit of this and the Cephalick Pouder, was covered over with solid flesh; and with these ordinary Remedies (yet which seldome fail a Chyrurgion, if after, generally he prescribeth a good Rule of living, and be diligent that the Patient content himself with a slender Diet, and abstain from Wine, and Venery, and keep himself loose) I cured this Noble Person, yet living, and many others, without the Perforation of the Skull.

OBSERVATION XVIII.

Of a Thrust into the Skull, penetrating both the Tables.

IN the Year 1631. on the 29th of August, a Souldier of the Emperours, Wounded *Jacob Wirth* of *Aiche*, on the top of the Head with a sharp Instrument; which, a Barber of that place bound up, and healed in a weeks time. On the 18th day after it was healed, the Patient complained of a great swelling, and pain on the head, in the same place. On the 9th, he was brought to *Ulme*. On the 10th, I opened the Skin, and Pericranium, with the Incision-knife, *Tab. II. Fig. I.* in the shape of the Letter X. and made the Skull bare. On the 11th I discovered where the Thrust had been made into the Skull; which, I tryed to take away with the Piercer, *Tab. XXXIII. Fig. I.* but finding the Thrust to reach the lower Table, and suspecting that it penetrated that also; on the 12th, letting alone the Piercer, I perforated the Skull with the Trepan, and made way for the matter descended under the Membrane. The matter being evacuated, I put a piece of Linnen dipped in Oyl of Roses upon the Membrane; to the bone, the Cephalick Pouder, and to the lips, a Digestive, and over that, Diapalma, the ordinary Cataplasme, and the Band called Cancer. On the 13th the pain remitted. On the 14th the Inflammation declined. On the 30th the Skull throwed off a Skale. And on the 40th the Wound was Cicatrized: —

OBSERVATION XIX.

Of a Wound on the Head, with two Fungus's, Mortal.

Conrade Schieffelen of *Ulme*, one of the Emperours Souldiers, about twenty seven years of age, of a hot and drie Temperament, in a most cruel and bloody Conflict, neer to *Wittinweir*, on the 9th of August, 1638. was wounded with a broad Sword on the hinder part of his head, with damage to the bone. An Empirick dressed this Wound at first as if it had been a single one. On the 24th of December the Patient come to *Ulme*, and fell again into the hand of some unskilful Barber; who bound up the Wound as the former till the 31st of January, 1639. at which time the Patient was received into the Hospital;

Hospital, where this Barber searched the Wound, partly healed up, and partly covered with an excrescence of flesh, with a slender Probe, which he thrust the third part of its length streight on, not only through the Fissure of the Skull, and both the Membranes; but also (alas how erroneously) into the substance of the Brain it self : out of which a quantity of matter flowed. On the 1, and 2d. of February his body being prepared and purged, the Patient complained of the heaviness of his eyes. On the 3d this imprudent Barber, by the order of the Patient, called me to consult with my most eminent Colleague, D. D. *Moyse Heldius*, and that most experienced Chyrurgion, *George Reidlin*; looking upon the Wound, and considering the Circumstances, we suspected some hidden mischief from the first putting in of the Probe so deep : whereupon I presently cut the Skin in the shape of a Triangle, with an Incision-Knife, *Tab. XXX. Fig. XI.* and bound up the Dilated Wound with Astringents. On the 4th day, the blood being stopped, looking into the Wound, we found a great broad Fissure of the Skull with two Fungi's. Things being thus, I applyed to the Skull, the Cephalick Pouder and drie Lint; to the lips, a Digestive, and over that Diapalma, and the Cataplasme of *Hippocrates*, hindering Inflammation, and a Rouler divided into four parts, *Tab. XXXI. Fig. IX, X.* On the 6th, the Patient complained of Giddiness of the head, and pain of the right eye. On the 7th he was somewhat better, and took *Bolus's* made out of six drams of Lenitive Electuary, two drams of the Electuary of the juice of Roses, and Sugar; whereby he voided bilious matter four times. On the 8th, the Patient complained again of pain of the right eye, and I applyed to him the Fungus, the Ægyptiacum Oyntment of *Hildanus*, mixed with Pouder of burnt Alum, which notwithstanding, did not eat down the Fungi; but so cleared them, that I could put my blunt Probe, *Tab. VIII. Fig. VI.* between them: and seeing that the Fissure was so long and broad, and that so many Errors had been committed by the Barber, I would not come to the Trepan, or Perforation of the Skull, that I might not put an Infamy upon that eminent Operation, which hath been helpful to many, for by their Relation it was evident, that not only both the Membranes of the Brain were hurt, but the Brain it self also suffered. On the 9th day, for pain of the head, the Median Vein of the right Arm was opened, and four ounces of blood taken away; in the evening he was better. On the 14th he slept little by reason the Stove was cold, for Wounds on the head require a moderate heat, and coldness of the air is an enemy to them. On the 15th, the lips of the Wound newly made, appeared red without pain, but the Fungi larger: for the drying up the Fungi, I used the Decoctum Divinum.

R

Take

Take of

Malmsey, a Pint and a half.

Red Roses, a pugil and a half.

Betony,

Woodbind,

Burnet,

Centaury,

Arabian Stechas, of each two pugils.

The Roots of long Birthwort,

Orris,

The Bark of Frankincense-tree, of each two drams.

Boyl all these to the Consumption of the third part, only give the Roses but one boyl, and strain them: add to what is strained out, two ounces of Hony of Roses well skummed.

But this produced no effect here, although in many others it hath been a present Remedy: whereupon I cut off a piece of the upper part of the greater Fungus with my Rasour. On the 16th, the Patient seemed well, and complained of his slender Diet. On the 17th he complaintd of a numness all over his right side, and both the Fungus's appeared bigger than the days before. On the 18th the Patient not being content with what Meats I prescribed, his Sister made ready for him a mixed dish of Apples, and other things, which he vomited up again as soon as they were down, and was very ill after it. On the 19th, a great quantity of purulent matter flowed out between the Fungi, and the Skull inclined towards yellowness, the lips of the Wound falling away. On the 20th, all the right side was taken with a Palsie, the Patient slept all night and complained of nothing. On the 21st, both the Fungi appeared white, and the Skull black and blew. On the 22^d, the Patient lost his Speech, began to be Apoplectical, and his right arm was moved about by Convulsive motions. The 23^d at nine of the Clock in the forenoon the Patient died. On the 24th I looked upon the Wound, and the Fungi were fallen so flat, that I could easily put my Ring-finger into the Fissure. I opened the Skull with a Saw; the inward Superficies of the Bone was so corrupted, that the whole bone of the back part of the Head as far as the Lambdoidal Suture was thinner than the *Os Petrosum*. It is also to be noted, that when there is no depression of the Skull, which may prick the coverings of the Brain, and thereby cause great pain, it is not necessary to cause the Patient to crack Nuts, or the stones of any Fruit, to find out whether there be any Fracture of the Skull: for this Person cracked Nuts, Philberds, Walnuts, Cherry-stones, Peach-stones; went about his military employment, and com-

complained not of pain of his head. Afterwards putting my Probe between the Fungus's, I found a great Abscess contained in its proper Coat, which lay hid on the left side of the Brain: then taking away the Membranes of the Brain, I shewed the Brain it self with the Abscess in its bag; I lifted up the Process of the Dura Mater, which is called the Falx, that the space between the right and left side of the Brain, with its Vessels, and turning winding figure might come in sight. The Brain being cut cross, and a great part of it being taken away without hurting the left Ventricle, the Abscess appeared; out of which there flowed stinking purulent matter in great quantity: the Abscess being cleansed with Cotton, there appeared about it a thick Membrane which contained this matter: for in the parts about it there appeared no sign of Inflammation or Corruption. Afterwards I shewed the left Ventricle somewhat pressed down, and the right not depressed, but full of clear water: on the left side the Plexus Choroïdes appeared pale, but on the right side very red.

From hence we have the cause of the Palsie on the right side, of the Giddiness, of the pain of the right Eye, and of the Convulsion the day before: and therefore where the Skull is hurt or fractured, and a Fungous flesh growing underneath, appeareth above the Skull and Flesh; it is a certain sign that the substance of the Brain, or at least Membranes of the Brain are bruised and turn.

OBSERVATION X.

Of a Wound on the Eye, made by thrusting in the end of a Spindle.

IN the Year 1644. on the 21st of March, Rosina Pfeifferin, a Souldiers Daughter, of four years of age, fell upon the point of a Spindle, which hurt not only the Eye-lid, but being thrust into the Orbit, was broken, and left there, so that she could not see in the least. A Barber bound up this, and healed it as a simple Wound: whereupon the Eye became greater every day, and drew to the inward Membrane of the Eye-lid. Things being thus, I drew the Eye-lid back a little with my Fingers, and separated the Eye-lid from the Eye with the Probe, *Tab. XXXIII. Fig. II.* which being done, I applied a Cataplasme warm to the Eye, made of the White of an Egg, an Apple, and this following Water:

R 2

Take

Take of

Plantain Water,
Rose Water, of each an ounce.
Tuty prepared, one dram.
The Stone Chrysol prepared, one scruple.
Crude Alum, half a scruple.

Mix them.

And bound up the Eye with *Galen's* Bandage. On the 22^d she took of Laxative Diacydonium, two drams and a half, which gave her five stools: I ordered a Blistering Plaster to be applyed to the Neck: from the use of these Medicines, the pain and swelling of the Inflammation remitted. On the 23^d, and 24th she was better. On the 25th she complained of a great pain of her eye: upon which, I unbound the Eye, and with my fingers drawing the Eye-lid from the Eye, I pulled out the end of the Spindle with the Pincers: which being drawn out, all pain presently ceased. And these are the Remedies with which I most happily restored the Souldiers Daughter to her former health.

OBSERVATION XXI.

Of a Convulsion of the Eye from a Concussion of the Brain.

IN the Year 1639. on the fifth of September, at one of the Clock in the Afternoon, *George Mercklen*, a Souldier of *Ulme*, was so hurt on the right eye, with a blow of Radish, weighing a pound, thrown at him by his Fellow-Soldier; that he presently fell to the ground, and lay for dead: in which case he was brought into the Hospital, and these following things were administred. First, I lifted up his Eye-lids, and found both his Eyes Convulsed upwards; and the 58th Aphorism of *Hippocrates*, in the 7th Section, coming into my mind; which is, that *Whoever hath his Brain, upon any occasion, violently shaken, he must necessarily become Dumb*: which also happened so in our Patient; for revulsion sake I prescribed this following Glistre.

Take of

Loosening Hony of Roses, two ounces.
Hony of Rosemary Flowers, one ounce.

The

The Electuary of the Juice of Roses, half an ounce.

Diacatholicon, six Drams.

The Carminative Decoction, nine ounces.

Mix them.

After the coming away of the Glister, the Median Vein of each Arm was opened, and eight ounces of bloud taken away: in the mean time he often made use of the comforting Water, mixed with the Anhalt Cephalick Spirit. On the 6th of September, which was the 2d day of his being hurt, general Convulsions succeeded his Apoplexy, lasting all the night; the Patients Pulse was equal; the Glister made use of again, and the Cephalick Spirit diligently given.

The Glister coming away, he was better; the Convulsions of his Eyes ceased, and they returned to their natural state: and what is more, he was able both to see and hear me, and the standers by, but could not speak; without doubt by reason of the compression, and obstruction of the recurrent Nerves. On the 3d, he slept well all night, and complained of nothing but a compression of his Windpipe; whereupon he took this following purging Potion.

Take of,

Loosening Syrup of Roses,

Choice Manna, of each six drams.

Extract of Rubarb, one dram.

Diacarthamum, half a dram.

Speedwel, and Burnet Water, of each as much as sufficeth, to make it into a thin Syrup.

After the working of which, at times, he used this following Lamentative.

Take of

Syrup of Violets,

Oxymel Simple, of each an ounce.

Flowers of Benzoin, half a scruple.

Speedwel Water, two drams.

Mix them.

On the 4th the Patient was better than the day before, and made signs that he would eat an Egg. On the 5th, he went on well, and by the same way desired to drink Hony and Water; but his Speech not returning, he took this Potion, an hour before Dinner.

Take of

Syrup of Roses, two ounces.

Diacatholicon, six drams.

Electuary of the Juice of Roses, three drams.

The Decoction of the Flowers and Fruits, as much as is sufficient.

Mix them.

Four hours after he took this, he spake very plain. On the 7th, he was excellently well; and being restored to his former health without any outward application, he went abroad.

OBSERVATION XXII.

Of a Wound and Fracture of the Nose.

IN the Year 1644. on the of 22^d, April the most Worthy *D. Wolfgang* of *Bartenheim*, living in the City of *Ulme*, upon going to see an Estate of his in the Countrey, fell from his Horse, the Horse striking him upon the Nose with his heel in such manner, that he so broke and mangled it, that the lips of the Wound, by reason of the great flux of blood, and coldness of the part, could scarce be brought together. That night *John Reidlin*, a Chyrurgion, stopped the blood with Astringent Medicines. On the 23^d, being called in, I found the Nose depressed, and very much rent; and therefore sometimes with a broad Probe, sometimes with a round, I reduced the partition, and bones of the Nose, and put in a little Tube of Lead into the Nostrils, dipped in Diapalma, and the Liniment Simple, that the Bridge, and Bones of the Nose, now reduced, might be kept in their place. I brought the lips of the Wound to touch one another without sewing; and kept them together with long pieces of Linnen, applyed cross-wise, dipped in this following.

The White of an Egg, well stirred up together.

Pouder of Tuty prepared, a dram and a half.

The Stone Chryl. prepared, half a scruple.

Plantain water, half a dram.

Mix them.

I bound up the part with *Galen's Band* for the Nose, by reason of a violent pain of his head, I applyed to his Fore-head and Temples, Hemp-hards, dipped in this liquid Medicine.

Take two Whites of Eggs.
Half an ounce of Rose-Vinegar.
Four ounces of Rose-water.
Two ounces of Oyl of Roses.
Mix them.

I Anointed his Neck with Astringent Oyls, and applyed to it long pieces of Linnen dipped in rough Wine, to hinder the Humours flowing to the head, for his faintings, I prescribed this Cordial.

Take of
Black-Cherry water,
Burnet Water,
Strawberry Water,
Rose Water, of each an ounce.
Prepared Pearl, half a dram.
Magistery of Red Coral, a scruple.
Pouder of Chrysol. prepared, half a scruple.
Pearl Tablets, half an ounce.
Mix them, for a Cordial Water.

Took often of this at times. At nine of the Clock in the Forenoon, he made use of this cooling solutive Glister, to keep the humours from flowing to the head.

Take of
The Leaves of Mallows,
Burnet,
Violets,
Borage,
Water-Lillies,
Flowers of Camomile, of each half a handful,
The Seeds of Flax,
Melons,
Fennel,
Citrons, of each a dram.
Boil them in a convenient quantity of Water, and to eight ounces of it strained out, add to it Hony of Roses solutive, four ounces.
Oyl of Violets, two ounces.

R 4

Oyl

Oyle of Camomile, one ounce.
Mix them, for a Glister.

With which, he voided twice, very thick and parched matter. At ten of the Clock, the Chyrurgion opened the Median Vein of the right Arm, and took away five ounces of blood, which appeared full of Gall, and half corrupted. In the evening, to extinguish his intolerable thirst, he took a draught of the Mineral Waters of Ueberkingen, mixed with Pomegranate Wine. I ordered him a slender Diet; for his Meat, Boyled Barly or Panado, or sometimes Flesh-Broath, with the yolk of an Egg dissolved in it; for his Drink, Decoction of burnt Hartshorne mixed with Pomegranate Wine. On the 24th of April, he was stronger, and the pain of his head was less than the day before. I dressed the Wound with Plaisters: and for want of his sleep, and heat all over, I prescribed this following Decoction, to wash his Feet, and an Emulsion.

Take of

The Leaves of Betony,
Lettice,
Violets,
The Flowers of Lillies,
Poppies,
Roses, of each a handful.

Mix them for a Decoction for the Feet.

Take of

The Seeds of Melons, an ounce and a half.
Of White Poppies, half an ounce.
Water-Lilly Water,
Strawberry Water,
Black-Cherry Water,
And Sorrel Water, of each four ounces.

Make an Emulsion, to which, add,
Magistery of Red Coral, half a dram.

Prepared Pearl, two Scruples.

Syrup of Violets, two ounces.

Mix them, for three Doses, taking one after Supper, and after washing his Feet.

On the 25th, the Patient being asked, answered, that he had slept a little, and complained of a great heat, and redness of his right Eye: which, after divers Glisters, this following Cataplasm presently helped.

Take

Take

Two sweet Apples, boyled in Milk, and strained.

The White of an Egg shaken up.

Pouder of Prepared Tuty, a dram and a half.

A little Rose Water.

Mix them into a Cataplasme, excellent against Rheums and Inflammation of the Eyes.

From the 26th to the 30th of April, I put up little Tubes into the Nose, covered over with Oyntment of Tuty, and hindred the excrescence of the flesh with this Pouder.

Take of

Pouder of burned Alum, half a scruple.

Prepared Tuty, two scruples.

Mix them.

Outward I applyed the Ceratum Divinum, and with these Medicines I consolidated the Wound within and without the Nose: after the healing of the Wound, the Patient himself put in the Tubes, dipped only in Tuty Oyntment, and bound up with the part with Galen's Band, till the broken, and depressed Bones were united again with a Callous. With the same outward Remedies I cured Mr. Christopher Schleicher, and Melchior Eriet; who, besides a Wound on the Head and Nose, was so Wounded on the Breast, as to hurt the Stomach, and Midriff: of which, afterward, there is a particular Observation.

OBSERVATION XXXIII.

Of a Swelling, with a Bag cut out of the upper Jaw.

IN the Year, 1631. Rosina Stenglerin, of Gieglingen, of a Melancholy Temperament, declared to me, that four years before she had a Caruncle, or little piece of flesh growing upon the left side of her mouth, about the Eye-teeth of the upper Jaw; being of a red colour, hanging down, and of the bigness of a Nutmeg; which in the seventh Month, a Barber of that place took out without any preparation of the Body, or Application to the Part. After a few Months it grew again; being hard, red, full of Veins, and very painful; and so continued till the fourth year, at which time it was of the bigness of a Goose Egg, and stuck not only to the Jaw, and to the Eye-

Eye-teeth; but to the Canini, or Doggs teeth; and to the Roof of her Mouth; so as it hindred her in Swallowing, and Speaking: and therefore she desired me presently to cut it out. This Tumour was somewhat exulcerated about the Eye-teeth; not from its Malignity, but from the sharpness of the Vinegar with which she often washed her mouth when it smelled ill: And seeing that this Tumour could no otherwise be taken away, but by Manual Operation; for the preparing of her body, on the 4th of October, I prescribed this:

Take of

Mead with Tartar, two ounces.

Borage Water, four ounces.

Saxon Cordial, two Drams.

Mix them for one Dose.

This she made use of three days, twice in a day before Dinner, and after Supper. On the 8th, five hours before Dinner, she took these Pills.

Take of

The Mass of the Golden Pills,

Sine Quibus,

Extract of Pill. Cochiae, of each a scruple.

Magistery of black Mecoachan, seven grains.

Make them into small Pills, with the Syrup of Betony: and let them be gilded.

These brought away at ten Stools, much serous, bilious, and burnt matter. On the 10th, that we might see what bloud she had, the Median Vein of the right Arm was opened, and four ounces taken away, which was serous and burnt: I then ordered a Bag with these Ingredients.

Take of

The roots of Fennel, two drams,

Polypody half an ounce,

The toppes of Roman wormwood. one Pugil.

The leaves of Betoney,

Speedwell,

Agrimony, of each half a pugil.

The leaves of Borage, one pugil.

Leaves of Senna without the stalks, an ounce and half.

The roots of black Mechoacan, two drams.

The best Rubarb, three drams.

Hermodyctyls,
 Turbith, of each a dram and a half.
 Seeds of Carthamum, the husk taken off, six drams.
 Anis Seeds,
 Fennel seeds, of each half a dram.
 Crem of Tartar, three drams.
 Ginger,
 Cinamon, of each a scruple.

These being cut and bruised, put them into a Bag and infuse them into a measure of Neckar Wine.

Of this, every other day, two hours before Dinner, she took four ounces. By using this Purging Wine, her frequent spitting abated; which led us to the inspection of her blood and purgation: in the mean time the Patient did not neglect to keep a good Diet; and instead of Wine, drank a Decoction of Sarsaparilla. On the 20, and 21st, in the Morning, Afternoon, and after Supper she took as much as would lie upon a knives point, of this following Mixture.

Take of

Conserve of Borage,
 Conserve of Roses, of each an ounce,
 Preserved Citron Pill, two drams.
 Preserved Nutmeg, one dram.
 Magistery of red Coral,
 Pearl, of each a scruple.
 Lapis Hæmatitis, half a scruple.
 Syrup of the Juice of Citrons, as much as sufficeth.

Mix them.

On the 23^d, the Patient being better upon the use of this; for the preserving her strength, she often took a spoonful or two, of this comfortable Water.

Take of

Black Cherry Water,
 Borage Water,
 Rose Water, of each an ounce.
 The Anhalt Cephalick Spirit, one dram.
 Prepared Pearl,
 Magistery of Coral,
 Lapis Hæmatitis,
 Chrysolit prepared, of each a scruple,
 Pearl Tablets, half an ounce.

Mix them, and put them into a glass,

And

And that nothing might be wanting, I prescribed this sweet smelling Water.

Take of

Fuchsius his odoriferous Water,
Rose Water, of each an ounce.
Rose Vinegar, six drams.

Mix them.

After this Preparation, her mouth being opened, and her head held fast by the standers by; I separated the Tumour, before and behind, and beyond the Eye-teeth; and cutting it off in the middle with the Pincers, *Tab. XI. Fig. V.* I drew it out. After the extraction of the Tumour, for the stopping of the blood, the Patient often washed her mouth with this following Mixture.

Take of

Plantain Water,
Self-heal Water,
Rose Water, of each three ounces.
Rose Vinegar, an ounce.

Mix these, and wash the Mouth with them.

But seeing that after often washing of the Mouth the blood stopped not, I touched the Veins and Arteries with a red hot Iron Instrument, *Tab. XIX.* and applyed burnt Sponge, and the Astringent Pouder of *Galen*, and a piece of Linnen dipped in Whites of Eggs, and Red Wine, and pressed out. I bound up the Jaw on the out side, with Linnen four times doubled, and a Rowler with two heads. In the Evening the Patient was better, and the blood being stopped, a great quantity of serous matter flowed out of the mouth. On the 24th, the Patient complained of a great pain of her head; but the Medicines were left in her Mouth, for fear of a new Flux of blood. On the 25th, the blood being altogether stopped, I took out the burnt Sponge, and Linnen, and prescribed this following Gargarism.

Take of

Plantain Water,
Self-heal Water,
Speedwel Water,
Rose Water,
Cinquefoyl Water, of each three ounces.
Hony of Roses strained, two ounces.
Tincture of Roses, an ounce and a half.

Mix them,

The

The mouth being washed, I applyed to the Ulcer, Lint dipped in the White of an Egg, and an Oynment made up with the Astringent Pouder of *Galen*, and bound up the Jaw outwardly with a Boulster and Rowler.

In the Evening, by reason of her being bound, she admitted of this Laxative Glister.

Take of

The Carminative Decoction, eight ounces.

Hony of Roses solutive, two ounces and a half.

Diacatholicon, an ounce.

Oyl of Camomile, an ounce and a half.

Oyl of sweet Almonds, an ounce.

Mix them for a Glister. Which gave her six stools.

On the 26th, she said she slept very quietly all the night, without pain of her jaws. On the 27th, the Medicines being taken out which I applyed two days before, there appeared a little slimy part about the Palate, and Eye-teeth; which I touched with a Probe, wound about with Wool, moistned with Spirit of Vitriol; and ordered the Mouth to be washed with the ordinary Gargarism. On the 28th, the dressing being again taken out, all was very fair about the Palate, and Eye-teeth. On the 29th, the Eschar which the Fire made, being taken off, she washed her mouth often in a day with this.

Take of

Hony of Roses strained,

Tincture of Roses, of each an ounce and a half.

Mix them,

On the 30th, by reason of a pain of her head, she made use again of the Cephalick Pills; upon which, all pain ceased. On the 31st, I Cicatrized the Ulcer, and the Patient began to speak without any Hesitation. On the first of December she was well, but for the farther drying up the part, she drank a Decoction of Sarsa. On the 22^d, I looked in, and found almost all parts of her mouth skinned; and to prevent any relapse, I advised her to make use again of the purging Wine. On the 3^d, the Ulcers being totally healed, the Patient went abroad very joyfully.

OBSER-

OBSERVATION XXIV.

Of an Excrecence of Flesh on the Roof of the Mouth.

IN the fore part of the Roof of the Mouth, behind the fore-teeth, there is a remarkable cavity, through which, a Vein, and Artery, together with the skin of the Roof of the mouth, pass into the cavity of the Nose; out of this hole for three months there had grown an excrecence of flesh, like a Fungus, in the mouth of a Noble Matron, Wife to D. *Albert Steichers*; out of which, a great quantity of blood flowed, as often as she did but gently touch it with her tongue: at length this Fungus, or Excrecence of flesh grew to the bigness of a Walnut, so as it hindered her speech; and she made use of a Barber, who applyed some Medicines but in vain. Being sent for, upon the 10th of *March*, in the Year 1641. I looked upon the part affected, and touching the bottom of the Excrecence with a Probe, the blood presently flowed out: considering this, it was manifest that the original of this evil, came through the forementioned hole; and therefore she sometimes made use of *Aquapendens* his Pills, which purged her head very well, and kept a good Dyet. I touched the Excrecence with rectified Spirit of Vitriol, Juice of Purslain, and Tincture of Roses mixed together, and diminished it; and at length extracted the rest with an Instrument which I use to draw out a Polipus. So in the space of ten days, she was restored to health, to the admiration of all. For two years before this began, she was troubled with deafness, and pain of her ear; but since the effusion of blood, she heareth without pain, so, as I conjecture, the Disease was cured by Mutation, or Transposition.

OBSERVATION XXV.

Of a callous Hollownes, and Corruption of the Palate bone.

THE most Noble and Reverend Dean, D. à *Croneburg*, in the Year 1626. complained of a Periodical pain of the teeth, and a troublesome hollownes in the roof of his mouth; and by that eminent Physitian of *Ausburg*, *Johannes Wolfgangus Beer*, desired my advice and help: and this Disease taking its original from the suppres-

in of the Hæmorrhoides; I advised that the most Reverend Patient would be pleased, after a sufficient quantity of blood taken out of the Basilica of the left Arm, to purge away the superfluous, and excrementious humours, with a purging Wine; to open the Hæmorrhoides with Leeches, and to make an Issue in the left thigh: whereby those humours which ascended to the head, and part affected, increasing the pain of the teeth, might be evacuated by revulsion, and discharged by the Issue; for preventing the force of the pain, I proposed the operation in the Anthelix; which the forementioned Physician did most dexterously perform with my Iron Instrument, red-hot: this being done, we took care to draw out the rotten tooth, whereby the injections of the Decoctum Divinum, used in the cure of rotten bones, might pass through the Cavity which the tooth left, and reach the fistulous hollownels in the roof of the mouth; but seeing the Cavity about the tooth, and the callous hollowness of the Palate did not close, nor was there hopes that the Patient should be cured without the help of fire; I asked him if he would trie the efficacy of this only Remedy left, which we might do with great hopes of recovery; and he admitting of it, I sent the Instrument described, *Tab. I. Fig. IV.* to *Ausburg*, to *D. Bæer*, with which, being made red-hot, he cut down the rottenness of the Palate, to the hollowness of the tooth, without the loss of the least drop of blood; and turning this Instrument round, he made a notable impression upon the bone. The Eschar being taken off, the rottenness of the Palate bone came in sight; which being touched three or four times with the Iron Instruments red-hot, *Tab. XIX. Fig. VIII.* and *IX.* and nature being assisted by the taking of drying Medicines, made a separation, and the Ulcer being consolidated, the Patient recovered his former health, and kept open the Issue in his thigh for many years with great benefit.

OBSERVATION XXVI.

Of another Tumour in the upper Jaw, contained in a Bag.

IT is evident, both by seeing it, and the Determination of Physicians, that the griefs of which the most Noble, and Honorable Lady *Maria Cordula Trappin* complaineth of, are a Hemicranium or pain of one side of the Head, and a Tumour under the skin of the upper Jaw, containing a matter like to Fat or Honey; the cause of these

these effects, is a pituitous matter, thin, and mixed with Gall; and as the Gall hath its original from the heat of the Liver, and the obstruction of the Spleen, so it cometh partly from the head, partly from the Stomach, and Womb: and for the curing of this, it is necessary, that the pituitous and bilious humours be evacuated, the Liver cooled, the Spleen free'd from obstructions, the Head dried, the Stomach & Womb strengthened, to hinder these humours from being generated, or gathering together, so as to flow to the head. Upon these Indications, I believe I shall satisfie in my Prognostick: and considering this indisposition of the Head, and also of the lower parts, the Cure must needs be difficult. Notwithstanding (left in the space of some few months the Disease may not grow worse, which certainly it will, unless fit Remedies upon the first occasion be made use of) I will propose what ought to be done in this case; and according to my judgment, the Cephalick Vein of the right Arm should be opened, and six or seven ounces of blood let out. This being done, for revulsion, and derivation sake, the Lady should admit a Seton to be made between the first and second Vertebra of the Neck; or instead of it, apply a blistering Plaster to the Neck every third month, and make an Issue four fingers above the left knee, *Tab. XLIII. Let. I.* and in the most convenient place of the right Arm, *Tab. XLIII. Let. H.* As to the hard Tumour, before the use of the Acid Mineral Waters, and the Decoction of Sarsa, I would not apply any thing. Let her Body be prepared and purged with these gentle Remedies. Let her make use of this purging Syrup.

Take of

Syrup of Manna, one ounce.

Extract of Rubarb, a dram.

Diacarthamum, two scruples and a half.

Crem. of Tartar, one scruple.

Black-Cherry Water, as much as sufficeth.

Oyl of Mace, two drops.

Mix them into a liquid Syrup.

Then let her take Hydromel with Tartar, and afterwards be purged with the infusion of Agarick, Rubarb, leaves of Senna, Syrup of Roses solutive, and Manna. Let the heat of the Liver be tempered, and the obstruction of the Spleen opened by the use of the Acid Waters; then for the purging of the whole body, and particularly the head, by reason of the pain on one side, let her take these following Pills.

Take of,

The Mass of the Golden Pills

Cochæ

Cochia Pills, of each half a dram.

Magistery of Jalop, seven grains.

With Syrup of Betony, form them into one and twenty Pills, and gild them.

Afterwards let the Head be cleared with gentle Masticatories, and sneezing Remedies, lest the humours too much stirred up, be thrown upon the eyes and breast, let the head be strengthened with a Cephalick Spirit; of which, to take fifteen drops morning and evening in a few spoonfuls of Black-Cherry Water. In the Autumn, after general purging, cooling the Liver, opening the Spleen, and strengthening the head, there is nothing better to dissolve the Tumour in the upper Jaw than a Decoction of Sarfa, which hath this Prerogative to digest, and dissolve all hard Tumours; but let it be so prescribed that it heateth not the blood.

Take of

The roots of Sarfa, two ounces.

Guaiacum, for the strengthening the Stomach, half an ounce.

Fountain Water eight Pints.

Infuse them for four and twenty hours, and the boil half away, and strain it. †

Take five ounces of this five hours before dinner; and four hours before Supper, and every morning sweat gently in bed, after the taking of it let there be a second Decoction made for ordinary drink, boyling the Ingredients of the first Decoction in ten pints of Water, till the third part be boyled away, adding at the latter end, two ounces and a half of Raisins, continue the use of these Decoctions thirty days, renewing every second day the second Decoction, in using this Sudorifick there must be care taken that she be not bound; and therefore every other day let her make use of a Glister, or a laxative Potion. Once in a Week let her take the forementioned Pills, or something equivalent to them: and abstain that day from the use of the first Decoction. For the weakness of her Stomach, let her take half a spoonful of the following Spirit of Mastick;

Take of

Mastick, three ounces.

Galanga, one ounce.

Cinamom, two drams.

Infuse them in Spirit of Wine, and distill them.

To the outward part of the Stomach apply a Cere-cloath of Carranna, and Tacamahaca, and the like : and if the Tumour doth not yield to these Remedies, it must at last be cut, and these few things, the most Noble Patient, may safely use ; but I leave them all to the judgment of the most famous, and excellent Physitian upon the place. From Ulme in Schwaben-land, Aug. 20. 1642.

The Cure of the foresaid Tumour.

This Tumour, of which I wrote in my advise, was on the upper Jaw on the right side, bigger than a Hens Egg, white, unmoveable, and hard. The Last Autumn (her body being prepared, and bloud taken away,) the Patient made use of the Decoction of Sarfa, by which means the Tumour was almost dissolved, as appeareth by the Letters written to me from the Lady.

*The Extract of a Letter written at Heilbrun,
March 7. 1643.*

The Tumour upon the right Jaw, after the use of the Decoction of Sarfa, was decreased, and almost disappeared ; and it pleased Almighty God so to direct the Cure, that I thought it had been perfectly well : but unhappily, after Christmas Holy-day, by the consent and advise of a Physitian, I went into an ordinary Bath, and was scarce come out of it before I felt an alteration, and increase of the Tumour, and from hence I feell daily a greater compression, not without pain, as in former time, &c. from hence, the benefit of the Decoction of Sarfa is evident.

Eu after some months, using the Bath, and her head being heated, the Tumour, upon much grief, and continual shedding of tears, increased to the former bigness. Things being thus, the Patient came from Heilbrun to Ulme, to be cured. Consulting therefore with the most excellent D. D. Christopher Eysenmenger, Physitian to the Republick of Heilbrun : we gave our Prognostick, hoping for very good success if the bone was not hurt. She being therefore purged and let bloud ; upon the second of May, 1643. we placed the Lady in her bed, binding her hands to her side. Then one of the standers by, drew the upper lip, upward, with a hook, that with my separating Knife I might come conveniently between the Tumour, and the first Muscle, which lifteth up the lip. I passed this Knife as far as the Suture of the Os Jugale, and separated the Tumour from the foresaid Muscle ; but lower, neer to the grinding Teeth, and the Gum, I found

found the coat of the Tumour Cartilagineous, and in vain attempted to bring it from the fourth bone of the upper Jaw; so that I was forced to cut the bag; which being cut, there flowed out a thick yellow matter like to honey, and the Tumour subsided: the matter being taken out, and the Cartilage cut off with the Pincers, I bound up the Wound with the white of an Egg, the Pouder of Chrysolite prepared, and the Astringent Pouder of *Galen*. The next day the blood being stopped, I found a little swelling neer the second Musclé, which draweth away the lip, under which there was a hole, through which I could easily pass a blunt Probe into the hollowness of the bone. On the 12th day, in the presence of Dr. *Eysenmenger*, I cut into the swelling, and dilated the hole. On the 13th, after the departure of Dr. *Eysenmenger*, I found, neer to the Dog-tooth, another swelling, hard as a bone; which also I cut out with the Pincers, *Tab. XI. Fig. II.* The space where the bag was, between the last grinding tooth, and the dog tooth, was so consolidated, that not one drop of matter came out, but I kept the hole open, till the bone might skale by the help of the decoction of *Sarsa*, and the bone being taken way, I healed up the Wound.

OBSERVATION XXVII.

Of a Gun-shot Wound in the lower Jaw.

IN the Year 1634. on the 27th of *August*. a *Swedish* Commander of Horse, was wounded, at the Battle of *Nördlingen*, into the lower Jaw, a little below the right Ear, with two Bullets, both of which hurt the Tongue, and brake the opposite part of the Jaw; spoiled the Tonfils. and all the Grinding-teeth, causing a great flux of blood, Faintness, and a Fever; by reason of which, the fifth day I prescribed these things following.

Take of

The Syrup of Juice of Citrons,
The Rose Julep with the Tincture, of each an ounce and
a half.

Endive Water,

Plantain Water, of each two ounces.

Mix them into a Syrup.

At night he made use of this Cordial Potion,

S 2

Take

Take of,

Prepared Pearl,
Red Coral prepared, of each seven grain
The Chrysolite stone prepared, seven grain
Rose Water,
Plantain Water,
Black-Cherry Water, of each an ounce.
Syrup of Coral, two drams,
Syrup of Citron Juice, a dram and a half.

Mix them for a Potion.

This being done for revulsion sake, I prescribed a cooling Glister.

Take of

Loosening Honey of Roses,
Oyl of Violets, of each three ounces.
The Emollient Decoction, ten ounces.

Mix them.

With this he voided thrice a black matter, mixed with blood. After the use of the Glister, and the stopping of the blood, I unbound the Wound, and found not only the lower Jaw broken on both sides, but the Tongue also wounded, with a great Inflammation, and loss of speech, and therefore I presently prescribed an Astringent Gargarism; and his mouth being washed inwardly and outwardly, I put in a little burnt Sponge, dipped in the white of an Egg, stirred up, sprinkled over with the Astringent Powder of Galen, and prepared Chrysolite; and the parts about it being anointed with Oyl of Roses, I bound it up: and by this means that violent flux of blood was stopped. The next day he was something better; but complained of a great pain of the head, and a beating pain of the right side; for which, the Median Vein of the same side was opened, and four ounces of blood taken away: an hour after, he took Barly Broth, injected through a Tunnel, *Tab. XXXVI. Fig. III.* On the 3d day, he made signs with his fingers of a great pain upon the Temporal Muscle; whereupon this Cataplasm was applyed.

Take of

Barly Meal,
Bean Meal, of each six ounces.
The Crum of Household-bread, four ounces.
Oyl of Roses, three ounces.

Red

Red Wine, and
Oxymel Simple, as much as sufficeth.
Mix them upon the fire into the form of a Cataplasm.

At night he took Panado, through the Siphon, and a little Barly Water: at midnight he took this Draught, Syrup of the Juice of Citrons, and Pomegranate Wine, of each an ounce and a half; with two ounces of Black-Cherry Water. On the 4th day, he pointed with his finger, and wrote down, that he felt a great pain in his mouth, about the Uvula. The blood being stopped, I unbound the Wound, out of which, the matter flowed with so great a stink, that I could not endure it; but the inward parts of the mouth being washed with this following Gargarism.

Take of

Plantain Water, two ounces.
Self-heal Water, one ounce.
Bole Armenick, one scruple.
Sal. Prunella, two scruples.
Alum, one scruple.
Syrup of Myrtles, one ounce.

Mix them.

I looked about the Uvula, and with my Probe touched somewhat that was hard and loose, or a piece of bone which had pricked the parts about it, and caused pain about the throat: this piece of bone I pulled out with the teeth of my Pincers: in the evening, being bound, he used the former Glisten. On the 5th day, he was somewhat better; and unbinding the Wound, a great deal of half-digested matter came out. On the 6th, he took this medical Potion.

Take of

Loosening Syrup of Roses, an ounce and a half.
Extract of Rubarb, one dram.
Plantain Water, as much as sufficeth.
Chrysolite prepared, six grains.

Mix them.

Which gave him four stools: and the Wound was bound up with this Digestive.

Take of,

Turpentine washed in Scordium Water, two drams.
Pouder of Orris, and

S 3

Round

Round Birthwort, of each half a dram.
Syrup of dried Roses, two drams.
Mix them for a Digestive.

Outwardly, there was applyed a Tent dipped in Oyl of Violets, and Oyl of Earth-worms: there was nothing used to the Tongue but Rose Water, and the Gargarism. On the 7th day, he began to flutter, and pointed with his finger, signifying that his throat was fore. I looked in, and drew out a piece of the bone, and then bound up the Wound as the day before. On the 8th, he complained of the Colick; but after the use of the ordinary Glister, to which, a portion of Oyl of sweet Almonds was added, he was much better.

OBSERVATION XXVIII.

Of a Periodical Pain of the Teeth, most happily Cured.

Although the Pill of *Herlicius* held in the Mouth doth wonderfully appease all pain of the Teeth, which is made out of the Seeds of Parsly, Henbane, Opium, and Syrup of Poppy.

Take of

The Seeds of Parsly, two grains.
Henbane,
Opium, of each four grains.
Syrup of Poppy, as much as sufficeth.
Mix them, and make them into one Pill.

Yet for the curing, or hindering the Periodical return of the Pain, which hath often deceived the most excellent Remedies; *D. D. Spiegelius*, with most excellent success, did use to cut that part of the Anthelix, which doth immediately touch the upper part of the Tragus, with a long sharp Iron Instrument, red-hot, *Tab. XII. Fig. I.* and then healed up the Wound again. By this new way of Chyrurgery, that little branch of the Carotidal Artery, which passeth from the Anthelix of the Ear, to the Teeth, is cut in pieces, cross-wise: so that the Afflux of the Humours being intercepted, the pain returns no more. The wonderful efficacy of this Operation, the Author experienced first, in himself; and afterwards, in my presence, and in not a few others.

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OBSERVATION XXIX.

Of a strong Apoplexy, upon breeding Teeth.

IN the Year 1638. upon the 27th of February, about eight at night, *Ordolphus*, Son of the Illustrious, and generous Baron *Ferdinand Geizkoither*, between the 12th and 13th month of his age, upon the difficulty of breeding Teeth, dyed of a strong Apoplexy. Four days before his decease, I propos'd to his Parents, the burning of the hinder part of his head, which had helped many others, as I had often experienced: but the Parents refusing it; I made use of such Remedies, as are used in these great swellings, and itching of the Gums, Fever, and Catarrhe: Notwithstanding which, without any manifest Convulsions of the parts, any noise, or grinding of the Teeth; he, who was the last hope of this Family, being taken with an Apoplexy, departed this life. But that this time of breeding Teeth, is very dangerous, especially when they breed the Dog-teeth, about the thirteenth month, is evident from the 25th Aphorism of Hippocrates, in the third Section: and from the Common saying.

*Parents are of their Children ne're assur'd,
'Till they 'ave the cutting of those Teeth endur'd.*

OBSERVATION XXX.

Of the String of the Tongue, ill broken with the Nails.

IN the Year 1628. on the 2^d of March, the Wife of *Jacob Zimmermans* brought forth a fine Boy, the Ligament of whose Tongue a Midwife (whose name I spare) cut in pieces with her Nails, that he might afterwards speak the more articulately: but so great a pain and inflammation succeeded this Operation, that it hindered the Child from taking hold of the Nipple, or rather from sucking. The Parents ascribed this inability of sucking to the string of the Tongue; and thinking the Nurse had not sufficiently delivered the Tongue from its Ligament, sent for a Chyrurgion, who with the like Imprudence, cut in pieces both the Ligament, and Vessels of the Tongue;

out of which, the bloud flowed to the Wind-pipe, and the third day choaked the Child. The Child being dead; the Mother began to complain of swelled Breasts, by reason of the concretion of the Milk; and the right breast being ill handled, at last degenerated into an Ulcerated Cancer: and the Woman, after suffering most grievous pains, died.

A Girl new born, after that a Chirurgion had cut the string of her tongue with a common Lancet, by reason of the pain she was able to suck very little of her Mothers Milk, and the right breast growing hard, she put her Child to the left; and the pain under the tongue being mitigated, the Milk returned into both Breasts; but the hard Tumour would not be softened without the Child sucking it; and she perceived already, that the Vertebrae of the Childs back were distorted towards the right side, occasioned by applying the Child always to one Breast. From these two Examples it is apparent how dangerously the string of the Tongue is often rent by the Midwives Nails; and the Chyrurgions Lancet; and how much the lawful and just manner of doing it is to be esteemed: which, with many cautions, is proposed to us by *Fabritius ab Aquapendente*: concerning which, see *Tab XXXVI. Fig. VIII.*

OBSERVATION XXXI.

Of the Kings-Evil, covering the whole Neck.

IN the Year 1631. in the Month of *January*, the Wife of *Joseph Keonigs*, troubled with the Kings-Evil all about her neck, sent for me to advise her; to whom I prescribed a Pouder, mixed of equal parts, of Sugar, Ginger, and Turbith, which doth peculiarly purge Phlegm, the cause of these Scrophulous Tumours, from the deepest, and remotest parts,, according to *Avicen, Lib. 4. Fen. 3. Tract. 2. C. 10.* But because it was against the nature of this Worthy Person to drink pouder in Wine; I prescribed this following Mixture three times, which she took without offending her Stomach.

Take of

Turbith Pounded, four scruples.

Preserved Ginger, as much as sufficeth.

Mix them into an Electuary.

The Body being sufficiently purged from thick humours, I applyed to the part affected, the Ceratum Oxelœum, softned with Oyl of Lizards ; the description of which is, this.

Take green Lizards alive, as many as you please ; boil them in common Oyl till the Lizards be burnt, and the Oyl be black ; what is strained out, put into a glass, and set in the Sun, till the dreggs fall down, and the Oyl cleareth, and becomes of a brown colour : and I exhibited for thirty days together, every morning, six drams of the Electuary which *Hercules Saxonia*, and *Johannes Prevotius* esteemed as a great secret, and certain Remedy in the Cure of the Kings-Evil, and prepared it thus.

Take common Lizards, or green Lizards, the heads and tails cut off, and the inwards taken out, infuse them by themselves in very sharp White-Wine Vinegar, and made without Pepper, for four days, then drie them, and steep them in other Vinegar, and drie them again, either in the Shade, or Sun, and Pouder them ; this being done, mix an ounce of the Pouder with four ounces of Hony : which is to be taken for thirry, or forty days : two drams is the dose for children, but for men or women, half an ounce, six drams an ounce at highest.

These Remedies being given, and applyed, our Patient Recovered in the space of a Month. *Johannes Riolan*. l. 2. *Anthropographia*, 15. *de Mesenterio*, writeth, that scrophulous Tumours never break out in the body unless the Mesentery be Scrophulous, which also *Guido*, and *Ingrassias* do testifie, such a Mesentery filled with innumerable kernels, I found in the body of the Noble Lady *Altesheimem*, which I opened because the body was full of these Scrophulous Tumours, and I sought after the cause of the Dropsie.

I have experienced the Vertue of that marvellous Oyntment which *Fabritius ab Aquap*. l. 1. *Pentateuch*. c. 21. commendeth in the Kings-Evil when broken out, in Nun, and in a young Maid, one having Ulcerated Tmmours in a the Breast, the other in the Neck.

OBSERVATION XXXII.

Of a Quinsie, hindering Swallowing and Breathing.

A Noble Woman of *Ulme*, on the 7th of *July*, 1627. while her Courses were upon her, in the evening, was taken with a dangerous Quinsie, which made her breath with difficulty, and hindered her from swallowing either Meat or Drink: being called to her, I presently order'd a Laxative Glister, and that being come away, six ounces of blood to be taken out of the Median Vein of the Arm. On the 8th of *July*, a stronger Glister was given her, and after it had done working, she sitting up in her Bed, a Barber opened the Veins under the Tongue, and applyed Cupping-Glasses, without Scarification, to the inside of her Thighs: which he had also done the day before, with a great deal of Fire, not only lest the Menstruous Purgations should be stopped, but also to hinder the Humours flowing to the part affected. Afterwards I removed the Cupping-Glasses, and prescribed the Patient a Gargarism; which, in all dangerous Quinsies, in the beginning of the Augmentation, is highly commended to wash the Throat therewith often in a day.

Take of

Mustard Poudered, half a dram.
Sharp Wine-Vinegar, one ounce.
Plantain Water, three ounces.
White Sugar, two drams.

Mix them.

Which in the space of fourteen hours, partly by Repelling, and partly by Dissolving the Humours, delivered the Patient from the Jaws of Death.

OBSERVATION XXXIII.

Of a Face burnt with Gun-Powder.

IN November, 1634. A Grocers Son had placed in his Shop, a pan of live Coals, so neer to a Chest in which there was laid up ten pound

pound of Gun-Powder, that the great South-west Wind blowed a spark out of the pan into the Chest, which was not covered, whereby the Gun-Powder being set on fire, it burnt the Boy's Face so, who was warming his hands, that he could neither lift up his Eye-lids, nor take Meat and Drink into his hands, nor receive it with his mouth. The Boy's Parents being very solicitous to restore him, desired my advise the first hour he was hurt; for whose greater satisfaction, I prescribed this singular good Liniment, with which the Chyrurgion anointed the parts four times in a day, and in a weeks time healed that great burning without any Skarr.

Take of

Fresh Butter, nine times, or oftner, melted, and washed in
Distilled Frog-spawn water, six ounces.

Oyl of the Yolks of Eggs, two ounces.

Mix them, and make them into a Liniment.

Which, in any Burning takes out the Fire, mitigates the Inflammation, hinders Blisters, and takes away the Pain.

OBSERVATION XXXIV.

Of a Gutta Serena, or Blindness, Cured by a Seton burned in the Nape of the Neck.

IN the Year 1639. *Maria Reothin*, born in the Territory of *Ulme*, about the 26th. Year of her Age, upon the suppression of her Terms, complained of that which is commonly called, a Gutta Serena of both her Eyes, and being taken into the Hospital. I opened the *Vena Saphena* of the right Foot, and took away six ounces of blood, and then prescribed these uterine cephalic.

Take of

Pills of Castor two scruples.

Extract of *Cochiæ* one scruple.

Magistery of *Jalap* six grains.

Mugwort. water as much as sufficeth.

Make them into XXI. Pills.

And

And a purging Wine to purge her Head, and whole mass of humours. After the use of these Purgers, I burnt an Issue in the right Thigh, four Fingers above the Knee; and after a month her courses began to flow, but in small quantity, and therefore I prescribed to the Patient, a Dose of Ammoniacal Pills, whereby they were very evidently encreased.

About the third New Moon, she had only a show of them, and therefore I repeated the use of the Pills, upon which they came down well. The fourth month she had them in due time, and quantity; but was extremely sad, that she had not recovered her sight: and seeing that I had formerly in the Wife of *Jahn David Commerel*, and *John Conrade Ehinger*, found a Seton made in the Neck, to be most excellent in these obstructions of the Nerves, I made a Seton, and kept the Ulcer open for twenty days, till the Patient most joyfully recovered her sight, and her courses coming duly, she healed up the Issue in her Thigh, and enjoyed perfect health from that time till, 1645.

OBSERVATION XXXV.

Of a Venereal Excreffence of flesh in the Nose.

A Country-man of *Fungingen*, was troubled with a Venereal Sore in the Nose, and an Excreffence, which stopped up the Nostrils in such manner, that he could not breath through them: at which I prescribed him a sweating Drink of Guaicum; which being ended, I consumed the Excreffence of the Nose with this following Oyntment.

Take of

The Liniment prescribed by *Prevotius* in his Medicines for the Poor against Caruncles in the Urinary passage one ounce.

Mercury precipitate 2 dram and half.

Mix them into the form of an Oyntment.

In which dip your Tents which are to be put into the Nose. The Caruncles being eaten away, I put Leaden Tubes into the Nostrils, dipped in the *Ceratum Divinum*, till the Ulcers were consolidated; in

In these Ulcers some commend a mixture of the decoction of *Sassafras*, Hony of *Roses*, *Præcipitate* powdered, and *Aloe* of *Zocotara*, with which they wash the Nostrils oft en in a day, and heal them.

With this most excellent Oynment after a sudorifick course, I freed a Weaver of *Ulme* from the same Disease, without any pain, in a weeks time.

OBSERVATION XXXVI.

Of an incurable Gutta Serena, of both the Eyes.

IN the Year 1642. *Johannes Hegelen* an Apparitor of *Ulme*, complained of an Amaurosis, which the *Modernes* call a Gutta Serena; and being brought into the Hospital, he took often these Pills for the Eyes.

Take of-

The mass of *Pil. Lucis*,

Pil. sine quibus, of each half a dram.

Magistery of *Jalap*, six grains.

Distilled Oyl of *Fennil* two drops.

Eye-bright-water, as much as sufficeth.

Make them up into twenty seven Pills.

But receiving no benefit at all by them. I ordered first a blystering Plaister, and then a Seton to be made in the Neck: both which remedies being made use of without any perceivable advantage to the Patient, I called to mind that which I had inserted amongst my collection of Observations in the Year 1620. The Body of a certain poor Woman of *Padoa* (who had been troubled with an Amaurosis for twenty years together, coming by degrees upon her, and at last with an inward Cancer upon the Left Breast, which by repelling Medicines was driven in and killed her) was brought into the Anotamical Theatre; where, in the presence of many Students, I sought for the true cause of this blindness; and opening the Skull, I found the first and second Ventricle of the Brain, sunk down, and glued together; so that the Animal Spirits could not be carried through them to the Eyes: upon which, by degrees, the Optick Nerves withered away; for they appeared as little again, as in others. Thus the Amaurosis came upon her, the eye it self being not at all hurt,

hurt, but still well nourished by the Artery coming to the root of it, which was full and fair, and sometime suffered an Inflammation from the regurgitating of the courses. The most excellent *Spigelius* added in his Anatomical Lecture (Reading upon the head of this poor Woman) that this blindness could no ways be Cured, although *Pausanias* affirmeth, that a Wound on the Forehead did once take away such a Gutta Serena. From hence also it is evident, that this Disease doth not always arise from the obstruction of the Optick Nerves; but doth only insinuate such a disposition. Neither is it to be wondered at, if it yield not to the most Experienced, and Methodical way way of Curing.

OBSERVATION XXXVII.

Of a Depression of the Skull of a Woman with a Fissure.

IN the general cure of Contusions of the Head, I formerly took notice, that the Skull of those who were grown up, is seldom depressed without a Fissure, either in the inward, or outward Table; unless in those, whose Skulls are naturally softer than ordinary. This is confirmed by this Observation of a Serving-Maid of *Michael Rietmans*, who in the thirtieth year of her age, carrying a Vessel of Water upon her head, fell down, and hurt the right side of the fore-part of her head: which being much swelled, *Nicholas Reutte* was sent for, who applied a Lamb-skin warm to the part: the next day the Skin being taken off, perceiving a hollowness, I declared to the standers by, that there was a Depression of the Skull, and the necessity of dividing the Skin; which being granted, I cut the skin with an Incision-Knife, into the form of a Cross, and presently perceived a small Depression on the outward Table of the Skull, without any Fissure. The Wound being bound up, I was very doubtful whether the inward Table was intire, because the fall was from a high place; and therefore I proposed the use of the Trepan, but the Patient would not admit of it, declaring then, that this Wound or Depression, if there were a Fissure in the inward Table, could not well be healed, without Perforating the Skull; but if that were intire, the Patient might with less danger be Cured. I kept the Wound open 12 days, and not any one Symptom happening, which did argue either the Fissure of the Skull, or any other hurt of the Brain, I healed it up.

O B S E R.

OBSERVATION XXXVIII.

Of a Capillary penetrating Fissure on the Head, Cured both in a Boy, and in a man.

IN the Year 1644. a Cart with two Horses empty ran over *David Heilbrouner*, and hurt the Synciput on the left side, leaving the Bone bare; and causing a Fissure on the Skull; which being observed, and shown to the Parents, *Ezekiel Vogel* a Chyrurgion dilated the Wound, applying a Stupe, dipped in an Astringent, whereby the requisite scraping of the Skull might be safely performed. The next morning, being sent for, I found the Skull freed from the Pericranium, and fractured with a doubtful Fissure; and being provided with Scraping-Irons, I presently scraped down the Fissure below the space between the two Tables, where I perceived the inward Table of the Skull to have only a capillary Fissure: whereupon, removing the Scraping-Irons, I dressed the Wound, and the Bone, with my accustomed Dressings, and happily restored the Boy in the space of 24 days: who, without the use of the Scraping-Irons, as frequent Experience testifieth, might have perished. The reason why I did not Perforate the Skull, may be seen in my Discourse upon a Capillary, and Penetrating Fissure of the Skull, *Tab. XXXI.*

In the same manner I restored *John George Hornung*, who on the 28th of December, 1635. received a Wound on the Temporal Muscle, with a penetrating Fissure of the Skull, but Capillary.

OBSERVATION XXXIX.

Of a Contusion on the hinder part of the Head, helped by the Scraping-Irons.

IN September, 1637. *Mary Lutzen*, being miserably handled by the *Bavarian* Souldiers, complained of a violent pain on the hinder-part of her head, caused by an Empirick, who presently digested the Tumour with Suppurative Medicines, and then applied Dissolvents for fourteen days; till the Purulent matter not finding a passage, by reason of the thickness of the Coats, Corroded the Skull,

Skull, and the Pericranium; from whence these pains proceeded; and separated from the bone, the Insertions of those Muscles which are called *Splenij*, and *Recti*, and serve to extend the head. The Patient being received into the Hospital of *Ulme*, desired the Chyrurgions help: wherefore, after Generals, and a slender Diet, I cut the outward Skin with an Incision-Knife, in the shape of a Triangle, down to the Bone, taking care, lest the Fibres of the foresaid Muscles should be cut in pieces; and hereby making a passage for the included matter to flow out, I found the bone rough, and corroded with the matter: which being evacuated, I filled up the lips of the Wound with an Astringent Medicine well down; and the next day scraped the rough bone all about with the Scraping-Irons: this Operation being performed, I sprinkled the Cephalick Pouder upon the Skull, and applyed a Digestive to the Wound; till that within two days time the Skull was covered over with solid Flesh: the Bone being covered, I Incarnated the Wound with Betony Oyntment, and Cicatrized it with the Certaum Divinum. Twenty days after the scraping, the Skull threw off some Scales, and the pain of the Head returned: but pulling out the little bones, with the Pincers, the pain presently ceased. Hereby young Chyrurgions are to be admonished; if the Contusions of the head suppurated, yield not to dissolving Medicines, so long time applyed, they are not to continue the use of them: but rather, without any delay, or fear of danger, to cut open, in due manner, the Coverings of the Skull; lest the Quittter continuing a long while, under a very thick Coat, become Malignant, and Corrode the Skull, and Pericranium: See *Tab. XXXII.* a Contusion of the Head, without hurting the Skin or Skull.

OBSERVATION XL.

Of a Fistula on the Breast, with Corrosion of the Neck-Bone.

ON the 10th of November, 1627. *Sabina*, the Wife of *John Major*, Citizen, and Victualler of *Ulme*, came to me, and shewed me a Tumour with a Fistula, above the left Clavicle, the Orifice of the Fistula being so narrow, that it would scarce receive the point of a pin.

Enquiring into the cause of this, she informed me, that half a year before, she laboured under a violent Fever, which terminated in an

Ab-

scels upon this part. This Abscess the Physitian, otherwise very experienced, and *Matthew Memminger*. a Barber, after Suppuratives, opened with a Caustick, not very pleasingly, (for it being applyed for 36 hours, it caused very sharp pains, and frequent faintings) and took out the Eschar, which was about the bigness of a Dollar, with a Lancet; which being violently taken away, there flowed out a yellow stinking matter, but in small quantity. This Ulcer they kept open four weeks, and at length healed it up, but there remained a considerable Tumour and hardness, which they committed to Nature to dissolve. After six weeks this Tumour grew bigger than the former; which, after means to soften, and ripen it, they opened with a Raser, to exclude the matter, which again was little and bilious; and this being voided, they healed it up a 2^d time, and so the third and fourth time they cut it open, and conglutinated it again; not at all suspecting any injury done to the bone, which so many relapsis might easily have indicated: so that at last the abscess degenerated into a Fistula: so that as often as the Patient moved her left arm, or either of her feet, she suffered most fierce pains, and fainted away. Upon this, her Relations desiring my assistance, I prescribed Remedies to evacuate bilious humours abounding in her body: the abundance of which, the hot and dry constitution of her body did demonstrate; as also the yellow matter discharged through the Orifice of the Fistula, her yellow colour all over, and the foregoing Fever. Her body being prepared, and purged several times very well, I dilated the narrow Fistula (not with Iron Incision-knives, by which, not only the Pectoral Muscle, already hurt by the former Incisions might be more offended, but also the jugular Veins come to be hurt or cut, to the loss of life, as well as blood,) but with a Tent, made of the Root of Gentian prepared (that is, cut into the shape of a Tent, dried upon a Stove, and a thred fastened to one end of it) which I put into the hole, keeping it in with a Plaister of Diapalma, and the Bandage of the Breast-plate, in the last *Table*, Letter *S*. keeping it in four and twenty hours. The next day I drew out the Root with the Pincers, it being swelled up with a bilious undigested matter, and black at the end; and searching the cavity to find out the cause of this colour, I found the bone rough and moveable: for the greater dilatation therefore of the hole, I put in a bigger Root, with the Plaister Diacalcitis, and the former Bandage to keep in the Root: and anointed the parts about it to hinder any Inflammation, which the pain, arising from the Dilatation, although it were not vehement, might easily cause. The third day I put in another bigger Root, and so gradually I increased daily the bigness of the Tent, till the hole was big enough to take out the bone, which was almost separated. The sixth day I filled up the Fistula with Buttons, made of Sponge, fasten-

ed to a thread, so as the thread hanged out of the hole, and put over them a Plaster, and the Breast-plate Bandage, and anointed the parts about.

The preparing of the Buttons is thus.

Take a new Spung which hath never been dipped in water, and put it into an equal quantity of Wax and Rosen melted together; then press it out in a strong press, and drie it in the shade: out of this dried Spunge cut round Buttons, and fasten them to a thread.

The seventh day, the Spunges being taken out, the Fistula was very open through; which, taking hold of the bone with the Pincers, I drew it out without any great pain. The eighth day, the bloud being scooped, I sprinkled upon the sound bone uncovered, this following Pouder.

Take of,

The Roots of Orris,
Birthwort,
Heggs Fennel, of each half a dram.
Euphorbium, half a scruple.
Mysh a scruple.

Mix them.

Which I applyed with dry Lint, till the bone was covered over with firm flesh. I cleansed the Ulcer daily, with sprinkling the Pouder of refined Sugar upon it which doth also mitigate the acrimony of the Gall, and at length I cicatrized it with the Plaster of Diapalma. To the remaining hardness I applyed the Plaster Oxeizum, with Linnen thrice doubled dipped in Wine of the decoction and pressed out, that the reliques might be dissolved, and any new Flux of humours to the weak part be prevented: by this means in the space of fourteen days, I delivered this Woman from a most dangerous and troublesome affliction, as she her self is still ready to testifie, who now hath lived in excellent health ten years together, with a second Husband, *George Hebach*, a Dyer.

OBSERVATION XLI.

Of a Wound on the Breast, with a Fracture of the Rib.

Johannes Vandereisen of Augsburg, a Graver in Brass, and a publick Champion of the Feathered Party, at the *Rose-Inne* in *Ulme*, at eleven at night, received a Wound from a Baker, addicted to the Martiate

riate Faſſion, upon the left ſide, about the fourth Short-rib: the Cartilaginous part being cut in pieces, the Kell coming out with a great loſs of blood, attended by divers Symptoms; as Fainting, Vomiting, and a great pain and ſwelling about the Midriff. Being called, I preſently put in the Omentum, or Kell intire, and put a Tent into the Wound, with Hemp-hards dipped in the Yolk and White of an Egg beaten up together, ſprinkled over with an Aſtringent Pouder, and faſtened to a thread, and over it the Diapalma Cerate, and the Bandage of *Soſtratus*. On the 4th of *January*, about fix in the morning, I went to the Patient, that I might unbind, and look upon his Wound; but it not being expedient, by reaſon of his weakneſs, and for fear of his bleeding again; I gave him Chicken Broth, mixed with Aſtringents; and for the Colick, I applyed a Cataplaſm to his Belly, made of ſuch Ingredients, as digeſt, diſſolve, and take away pain; and for the ſtopping of the bloud, and preſerving his ſtrength, I preſcribed this Electuary.

Take of

Old Conſerve of Reſes,
Conſerve of Comfrey, of each half an ounce.
Trochies of Amber,
Sealed Earth,
Red Coral prepared, of each a ſcruple.
Pearl prepared, half a ſcruple.
Syrup of Myrtles, as much as ſufficeth to make an Electuary;
of which, he took a dram often in a day.

For the ſtreightneſs of his Breſt, and difficulty of Reſpiration, I ordered this following Lohoch; by the frequent uſe of which, he ſpit up a thick and tough matter,

Take of

Syrup of Maidenhare,
Liquerice, of each ſix drams.
Folefoot,
Speedwel, of each half an ounce.
Tablets of Diatragacanthum, three drants.
Violet Water, as much as ſufficeth.
Mix them, and make them into a Lohoch.

For the Pain, Swelling, and Inflammation about the Wound, I applyed the former Cataplaſm. On the fifth day of the month, the Pain, and Swelling ſomewhat abated, and the bloud being ſtopped, I unbound the Wound, and put in a Tent dipped in a Digestive,

and fastened to a thread, and over it the same Cerate Cataplasme, and Bandage as before. The same day I gave him Broth made with Burnet, Setfoile, Comfrey, Horsetail, Speedwel, Strawberry leaves, and Melon seeds, that the matter contained in the Belly might be discharged by the Urinary passages, mixing Astringents with them, lest without the use of these, he should bleed a fresh. Towards the evening he complained of an itching in the Urinary passage, a sign that the matter in the cavity of the Belly, by the benefit of the Diureticks, was voided by Urine. †

On the sixth day of the month the pain went off, and the swelling about the Wound vanished; and the Patient saying that he felt a greater itching when he made water, I looked upon the Urine, and found a great deal of matter mixed with it. †

On the 7th day the Patient complained of a pain upon the right Shoulder, and towards the evening, of a pain of the Liver, Fever, and dry Cough.

And upon the 8th, the former pains, and Feverish heat increasing, I took four ounces of blood out of the Basilica of the right arm; which being done, the pains ceased after an hour or two, and the Fever decreased.

Upon the 9th, the matter was digested, and the Patient was otherwise well; so that I began to consolidate the Wound, diminishing the Tent daily, till it came to be Cicatrized; but the Patient in the night feeling pains like to the Colick, about the Os Sacrum, or Ramp bone, and the Region of the Bladder; I prescribed, upon the 10th day, this following Potion.

Take of

Oyl of sweet Almons fresh drawn, three ounces.

The best Manna, two ounces and a half.

Camemile Water, as much as sufficeth.

Mix them into a Potion.

Upon taking this, he vomited up a great quantity of Choler, and had twenty Stools, voiding with them much bilious matter, which had been the cause of these pains: after this evacuation, the Patient was better, and the pains altogether abated, till the 23d day; at what time, keeping a bad Diet he fell into a bilious looseness, and by the persuasion of some Women, he fed eagerly upon Sloes, which gave him the Colick, with a continual desire of going to stool, without being able to do it. For which, on the 24th, I gave him, in Succory water, a dram of Rubarb powdered; and two hours after his taking the Rubarb, this following Potion.

Take

Take of

Oyl of Almonds newly drawn,
The Decoction of Camomile, of each three ounces.

Mix them.

The Choler being sufficiently evacuated, about eleven a Clock in the morning, both the Colick, and Tenesmus ceased. On the 28th the Wound was Cicatrized with the Ceratum Divinum, so that the Patient not complaining of any pain about that part, or any difficulty of breathing; on the 29th he went abroad, and drunk with his Companions till midnight: on the 4th of February, being perfectly well, he prepared for his journey homeward with his Wife, and being anger'd for a small matter handsomly Cudgell'd her. Hearing of which, I admonished him, that for the future, he should, as much as possibly, keep himself from passion.

OBSERVATION XLII.

Of a dangerous Wound on the Breast.

ON the 9th of February, 1633. the Noble *Nicholas Dietrick*, Sir-named *Sphereiter*, received two Wounds in a Duel, from the Generous *Rittwein*, a Swedish Serjeant Major; the first of which was on the left Wrist, running down to the hand, the Veins and Tendons being hurt. The other upon the right Breast, a fingers breadth below the Pap, which penetrated into the cavity of the Thorax, hurt the Intercoastal Vessels, and caused spitting of blood. By reason of these dangerous Symptoms, and faintness especially, he was carried home in a Coach with four Horses, where all things requisite for the Wound were proposed: amongst others, I judge this worthy to be noted, before the first binding up of the Wound, some out of that great throng of standers by said, they would suck out the blood which was within the Thorax; and being permitted, they did suck indeed, but it was not blood, but rather Gold; and one while he was sucking stole privately a Diamond Ring from off the Patients finger, but being found out, he restored it again. Being sent for, I looked upon the Wound on the Breast, and putting a blunt Probe through the hole into the cavity, I found it filled with blood; and from his spitting of blood, suspected that the Lungs were wounded; and therefore

I cast in with a Siphon, through the Wound with the White of an Egg, with the Astringent Pouder of *Galen*, Chrysolite prepared, and a little Plantain Water. I put also into the Wound, a Tent made of Hemp-hards dipped in the same, and tied to a string. I anointed the parts about it with Oyl of Roses, and put over it a Cerate of Diapalm, and bound it up with Linnen thrice doubled, dipped in Red-wine, and pressed out, and the Bandage of *Sostratus*, *Tab. XXXII. Fig. VI.* To the Wound in the Wrist, the same Remedies were applyed for the stopping of the blood; and to preserve his strength, and to stop the bloud in the Breast, he often took this following Water.

Take of

Burnet Water,
 Black-Cherry Water;
 Rose Water,
 Plantain Water,
 Speedwel Water, of each an ounce and a half.
 Cinamon Water, a dram and a half.
 Spirit of Lilly in the Valley, a dram.
 Pouder of Chrysolite prepared,
 Lapis Hæmatites,
 Red Coral, of each half a dram.
 Bezoar, seven grains,
 Prepared Pearl, a scruple.
 Pearl Tablets, half an ounce.

Mix them.

For his thirst, he drank Barly water mixed with Syrup of Coral, and Tincture of Roses; strictly observing a slender Diet. For his Fever, and spitting of blood, both for Revulsion, and Ventilation sake, I ordered the Liver Vein to be opened of the same side, and four ounces of blood to be taken away. This being done, he took nothing but the Decoction of Barly, mixed with the Tincture of Roses, and Barly Ptisan for his Supper. The next morning he complained that he had slept little or nothing in the night, and therefore at eight a Clock in the morning he took this following Glister.

Take of

The Roots of Sorrel,
 Marshmallows,, of each half an ounce.
 The Leaves of Burnet,
 Agrimony,
 Sorrel,
 Mallows,

Vio-

Violets,
Speedwel, of each half a handful.
Flax Seed, half an ounce.
Fennel Seed

Citron Seed, of each a Dram.

Boyl them in a convenient quantity of Water to ten ounces, and add to it, when its strained out,

Hony of Violets, three ounces.

Oyl of Violets, two ounces.

Oyl of Camomile, one ounce.

Mix them.

This Glister wrought thrice, and after that, I unbound the Wound; out of which there flowed a little blood. At the same time the Patient complained of a great Pain, and Heat of that side which was wounded, by reason of the heat of the blood gathered together within the Thorax: and seeing that the blood could not get out, by reason of the streightness of the Wound, although the Patient were placed in the same Posture in which he was Wounded: it was necessary to make way for the blood, either by dilating the Wound with the Incision-knife, *Tab. XII. Fig. I.* and *Tab. XXXVII. Fig. V.* or by a new Section between the third and fourth Rib, beginning to reckon from the lowermost, according to *Hypocrates* his way, who began his account from the last or twelfth; because this may easily be felt with the fingers, and it is the same, as to say, between the ninth, and tenth Rib, beginning to reckon from the uppermost. The Dilatation of the Wound had been in vain attempted; because the greatest part of the blood contained in the Breast, was gathered together about the Midriff: nor could I make the Paracentesis to any advantage, either on the right, or left side; in the left it had not been convenient, because the matter was gathered in the right; nor could it be performed in the right, by reason of the great swelling and pain of the Back and Liver; and to expect the evacuation of it, by spitting, or Urine, would be too dangerous, by reason of the great quantity of matter, which threatned the suffocation of the natural heat. Whereupon, I bound up the Wound as the day before, concluding with myself to proceed to another Operation, and provide a Pipe, or Canale, with a Stopper of Gold, to be made, *Tab. XXXVII. Fig. IV. A.* which might easily be bent into the shape of a Triangle, or Semi-circle. This Instrument bent like a Triangle, I put gently into the Cavity of the Thorax; and drawing out the Style, a great quantity of blood (without any sucking with the mouth) flowed through the Pipe. After this Evacuation of the blood, I put in the winged Pipe of Gold, *Tab. XII. Fig. XII.* covered over with *Galen's* Astringent

gent Pouder, prepared Chrysolite, and the White of an Egg, and over that a Plaster of Diapalma, a new Sponge dipped in Red-wine, and pressed out, Linnen doubled, and the Bandage of *Sofratum*. Upon this Evacuation, the Patient rested better the whole night. The third day after he was wounded, I put the Instrument again, into his Breast, and took out a Pint and a half; which Evacuation he bore very well, to the admiration of the standers by. After his Dinner, which was made of Ptisan, and the Decoction of Barly, he took at night this Emulsion.

Take of

Melon Seeds, half an ounce.

Poppy Seeds, a dram.

Strawberry water,

Burnet water,

Speedwel water,

Water-Lilly water of each two ounces.

Make an Emulsion, to which add,

Chrysolite prepared,

Prepared Pearl,

Red Coral prepared, of each nine grains.

Syrup of Violets, an ounce.

Mix them.

After the use of this he rested well all the night. On the 4th day, making water, he felt a very sharp pain in the Urinary passage; I looked upon the water, which was thick and stinking, a certain sign that the matter contained within the Breast, did tend towards the Urinary Vessels. In the evening, by reason of his being bound, he used this Glister.

Take of

The following Decoction, ten ounces.

Hony of Violets, two ounces.

Cassia newly drawn, half an ounce

Oyl of Violets, three ounce

Mix them.

From which he had two Stools.

Take of

Speedwel,

Burnet,

Self-heal,

Plantain,
Agrimony, of each half a handful.
Whole Barley, half a pugil.

Boyl them in a sufficient quantity of water, and small Wine, to a Pint, adding to it when it is strained out, two ounces of Hony of Roses.

Mix them for a cleansing, and healing Injection.

This Decoction being injected by the Seringe, *Tab. XXXVII. Fig. IV.* and Evacuated again, I put the hollow Pipe of Gold, *Tab. XII. Fig. XII.* dipped in the Digestive into the Wound, and over it the Cerate of Diapalma, and a Linnen Bolster dipped in Red-wine, and pressed out. In the mean time the Wound in the Wrist was not neglected, but dressed every other day, and bound up. On the sixth day, for a bitterness in his mouth, I prescribed this purging Potion.

Take of

Solutive Syrup of Roses, an ounce and a half.
Extract of Rubarb, one dram.
Diacarthamum, one scruple.
Crem. of Tarter, half a Scruple.
Succory water, as much as sufficeth,

Mix them for a Potion.

On the seventh day I mixt this following Decoction, with this ordinary Drink.

Take of

Speedwel,
Agrimony,
Periwinkle,
Self-heal,
Strawberry Leaves, of each a handful.
The Ashes of Crevis, one ounce.
Boyl them in a sufficient quantity of small Wine, to a pint and a half, adding Hony of Roses strained two ounces.

Mix them.

On the 8th day, the Patient, and the Wound on the Wrist were better, and he made use of this Cordial Pouder.

Take of

Chrysolite prepared,
Magistery of Pearl,

Red

Red Coral, of each four grains.
Mix them with a convenient quantity of Syrup of Violets, and Syrup of Coral.

The 9th day the Patient was better, and a little digested matter came out of the Wound on the Breast; therefore omitting the injection, I put in only the Pipe with the Digestive. To the Wound on the Wrist, instead of Diapalma, I applyed the Ceratum Divinum, to Cicatrize it.

On the 10th, nothing at all came out of the Wound on the Breast, but the Patient complained of a cough, which ceased upon taking these Pectoral Trochies with Musk and Amber.

Take of

The Species Diarr, two scruples.

Diambra, C.

Powder of Orris, of each a scruple.

Trochies of Gallia Moschata, two and twenty grains.

Starch, a dram.

White Sugar, an ounce and a half.

White Sugar-Candy,

Penidice, of each six drams.

Ambras, Gris. six grains.

Mucilage of Gum Tragacanth, made in Rose Water, as much as sufficeth, Make them into Troches.

His Urine was still thick, and his making Water painful. On the 11th, the Patient being in good health, and nothing more coming out of the Cavity of the Breast; lest the Wound should degenerate into a Fistula of the Breast, omitting the Pipe, I put in a Tent fastened to a string, covered with the Betony Oyntment, and over it the yellow Cerate.

On the 12th, 13th, and 14th, the Patient complained not, and said he was strong enough to walk without a staff.

On the 15th, 16th, and 17th, the Wound appeared clean and neat, and I put in daily a shorter tent, and the flesh began to grow from within. On the 17th, the Wound on the Wrist was Cicatrized, by the help of the Ceratum Divinum.

From the 18th to the 22^d, the Patient was excellently well; so that I took out the Tent, and applyed instead of it a Plegit of Lint, covered with Betony Oyntment, and bound up the Wound with a new Sponge dipped in Red-wine, and pressed out; and with a compressing Bandage, called the Breast-plate, in the last Table S.

On the 28th, I Cicatrized the Wound with the Ceratum Divinum, the

the Patient being restored to his former health.

On the 34th. he complained of a violent pain on his left-foot, which took its original from the disturbances of his mind, but his body being purged of bilious humours, it ceased.

OBSERVATION XLIII.

Of a Wound on the Breast, requiring the Paracentesis.

IN the Month of April, 1622. Anthony the Waggoner of Padua, was wounded in the Back, the Sword piercing as far as the right Breast, so that there was two Wounds: which caused him to fall to the ground in a swoon, losing his voice, being in a cold sweat, with an intermitting pulse, and vomiting of blood: which gave suspicion of the Heart, or Stomach being Wounded. I bound up the Wound on both sides; but first I Dilated the Orifice in the Breast, with a hooked Knife, *Tab. XXXVII. Fig. V. E.* and put into both of them a Tent of Hemp-Hards, dipped in the white of an Egg, and fastned to a String; and omitted nothing that was necessary to be done to such Wounds. The Wound being bound up, by reason of his great weakness, the use of Wine was granted him: and yet for a whole day, I could not perceive with my Fingers, any Pulse of the Arteries in his Wrist.

The next day, although a great quantity of blood flowed out of the Wound, yet no Pulse could be perceived, unless the Patient turned himself from place to place, or from side to side; the same day he took Panada, which he vomited up presently, from whence I concluded his Stomach to be Wounded.

On the third day the Patient breathed with difficulty; and felt a great pain near to the Diaphragme, on the Wounded side, scarce a drop came out of the Wound, and what is very much, the Pulse was very deficient; For this cause, between the third and fourth Rib (*Tab. XXXVII. Fig. II. 4*) according to *Hippocrates*, the breast was opened, to this intent: that the matter contained in the Thorax might be evacuated, least the natural heat should be choked, and the substance of the Lungs putrified: the Perforation being made, scarce three, or four drops of blood came out of the Wound; which I think is worthy to be noted; because say some, there will be a great Flux of blood from the Incision of the Intercostal Vessels. I do not deny, but that sometimes, and that in bilious Bodies, such a Flux of blood may fall into the Cavity when the Vein, or Artery is cut; but this may easily be avoided with the Incision-Knife, *Tab. XI. Fig. I.* and supposing the

Inter-

Intercostal Vein, or Artery were cut, what matter is it? little, or no blood from a fresh Wound, made between the third and fourth Rib, can be retained within the Cavity of the Thorax; and if it be retained, the next day, when the Wound is dressed again it will come out. The Breast therefore being opened, a full pound of matter, like to the washing of Flesh came out; which being evacuated, I manifestly perceived the Pulse, and put a Tent into the Wound, coated with the white of an Egg, and the Astringent Pouder of *Galen*. In the evening I unbound the artificial Wound, and again took out a pound of blood, mixed with a third part of matter: after that a Tent was put into the Wound, made of Linnen rowled together, and anointed over with this Digestive.

Take of

Oyl of St. Johns-wort half an ounce.

Turpentine an ounce.

Hony of Roses streined half an ounce.

Mix them for a Digestive.

And over that a Cerate of Diapalma, Linnen four times doubled, pressed out of red Wine, and a convenient Bandage.

On the 4th I bound up the upper Wound; and drew out of that which I made in his side a Glass of matter, the fourth part being blood. About the lips of the new Wound, there appeared an inflammation: whereupon I forbade the use of Wine, and prescribed Barly-water for his ordinary Drink. His Pulse was most manifest, and from the upper Wounds a purulent matter, in some small quantity issued out; I therefore prescribed him this following Syrup, to drink four ounces of it early in the morning, and towards the evening, two hours before Supper,

Take of

French Barly one handful.

Strawberry Leaves,

Leaves of Bugle,

Burnet,

Succory,

Foles-Foot,

Mouf-Ear,

Horfe-Tail,

Vervain, of each half a handful.

Roots of Madder two ounces.

Liquerice one dram.

Fountain-water four pints.

White-Wine two pints: boyl away half, and in the end of the

the Decoction add Hony streined two ounces.

Mix them for a vulnerary Syrup.

On the 5th. day, there came out a Glafs of quitter somewhat stinking. rather inclining to yellow, then white : out of both holes of the old Wound there came out a matter, like mouldy Cheese (as I have often seen in a Peripneumonia) and in small quantity. The lips of the new Wound were black and blew, the Pledgits black, by reason of the great impurity of his Body, and the Feaver higher than ordinary.

On the 6th. day, in the morning, and evening, there came out half a Glafs of matter, so stinking, that no body was able to endure the Room, and under the Pledgits, and Bolsters, matter almost black, I prescribed this following Decoction.

Take of

Scordium one handful.

Hony of Roses streined one pound.

Common Water six pounds.

Boyl away the third part, and let a pint of it streined out, be cast in through a Seringe. *Tab. XIII. Fig. II.* after the injection, I put in a Tent, dipped in the former Digestive. If a silver Probe be put into the Quitter, and being drawn out, according to *Hippocrates*, appeareth black, the Patient will hardly escape : in imitation of *Hippocrates* I laid a Probe in the Quitter ; and seeing it had contracted no blackness, but remained very white, I hoped well of his recovery.

The 7th. day, the Patient had a higher Feaver, then the days before, and the Quitter came out in a greater quantity, but not smelling so ill, as upon the 5th. and 6th.

On the 8th. the lips of the Wound, made between the third and fourth Ribs inflamed. Upon which the Patient suffered greater pain, and a higher Feaver.

On the 9th. day, the stinking of the Purulent matter did evidently abate, but in the evening there appeared about the new Wound, *St. Antonies Fire*, the hole being larger, and the third Rib bare.

On the 10th. the artificial Wound appeared larger than the day before. The cause of which Dilatation, in my judgement, was the bilious humour, which corroded the fleshy substance with its Acrimony ; in the night he felt great pains about the Baster'd Ribs, by reason of the Erysypelas, and the Intercoastal Nerve inserted into the descending Muscle of the Belly.

On the 11th. day he was better, and slept all night : he would not admit of the Siphon, by reason of the foreness of the Pleura, or Membrane, stretched under the Ribs.

On the 12th. He felt as great pain as the day before, therefore omit-

omitting the Tent; I applyed a piece of Spunge, pressed out of the Vulnerary Decoction, in the night he sweat twice, all over his Body.

On the 13. He was better, and white Quitter came out. In these cases, there is no better remedy, then not to purge the Body: for if any Purge be given, all the humours flow to the Guts; the Body is extenuated, and many bad Symptoms happen upon it.

On the 14th. He slept well, and the matter came out of the Wound in a small quantity. In the evening there came more away, and the Pulse seemed greater than ordinary.

On the 15th. His Feaver was higher then the day before; because the Patient had rested on his left-side, which was sound, and not on his right-side, which was Wounded: so that the matter contained in the Thorax encreased the Feaver. In the evening a Tent was put into the Wound in his side, because the Flesh grew too fast.

On the 16th. For a bitterness he felt in his mouth, three or four days together, he took Rubarb, and voided four times bilious excrements, after which he was better.

On the 17th. I gave him the ordinary Decoction, in the evening white Quitter came out, in a very small quantity. Whereupon the Decoction was not injected with the Seringe: his Cough left him, he slept well in the night, but the Feaver was somewhat higher than the day before.

On the 18th. I neither injected the Decoction, nor put a Tent into the Wound, but only Pledgits, with Betony Oyntment, and over it the Ceratum Barbarum. The Quitter inclined rather to green than white: he slept in the night, but quarrelled in his sleep, a sign of the abundance of bad humours in the Body.

On the 19. He sweat all the night, the Quitter was somewhat green still: four hours before Dinner, he took an ounce and a half of Cassia newly extracted, dissolved in Broth, in which Succory, Borage, Burnet, and Speedwell, were boyled, which Purged him thrice, the excrements being very bilious,

On the 20th. Half an ounce of Quitter came out. A Pipe of Tin was put into the Wound, made by Art, it being Dilated by the Tent, with a Spunge pressed out of Red Wine. The 20th. He could not sleep all the night, because the Pipe pressed upon the Ribs, and Membrane.

On the 21st, nothing came out of the Wound, yet the Pipe was put in as the day before. Then he took the Cassia dissolved in the former Broth, with powder of Rubarb, black Mechoacan, and Crem of Tarter: he drunk no longer of the Vulnerary Decoction, but of broth made with some Herbs, as Succory, Borage, Sowthistle, Strawberry Leaves, and Peruinckle, the Wound in the Breast was healed up.

On the 22^d, he took the same Broth again. On the 23^d, the Vulnerary Decoction was once again Injected, and a little quitter came out; which, because it was somewhat green, the Patient took the Purging Pouder again.

On the 26th, 27th, 28th, I did not Inject the Vulnerary Decoction, and bound up the Wound once a day; after two days the Fever decreased.

On the 29th, the Patient took his Broth, the quitter white, and the Patient almost out of danger.

On the 36th, when I looked again upon the Wound, a great quantity of matter flowed out, and the Lips were swelled; a sign that he had committed some error in his Diet; and being asked, he confessed he had eaten of some Milk-dishes which were forbidden: from which, he abstained after that, and was in a short time very happily restored.

OBSERVATION XLIV.

Of a Fistula in the Breast, Perforated with a Needle.

IN the Year 1630. an Officer of the Emperours being desperately Wounded, three fingers breadth below the right Clavicle, and almost cured at the sign of the Plough in *Ulme*; upon some error committed in his Diet, was troubled with an Inflammation, which suppurated, and degenerated into a large hollowness under the skin: the bottome of which, descended as low as the eighth Rib; so that neither the Chyrurgion, nor the Physitian could purge the matter out of this hollowness, unless they daily set the Patient upon his head, with his heels upward: but seeing that the Consolidating of this hollowness was delayed, and the Patient much disturbed every day, by the turning up his body, he commanded me to be sent for, being recommended to him by the Host of the House. Coming to him, and perceiving what it was I proposed the cutting open the hollowness, which useth to succeed very happily, being performed with the *Scolopomachæron*; but this Operation not being permitted; I thought of a way, whereby, without laying open the hollowness, the matter might find a passage: therefore the Orifice being Dilated with Gentian, I put in an Instrument, *Tab. XIV. Fig. V.* to the sharp end of which, a little ball of Wax was fastened, and without the Patients knowledg, (for he thought I was only searching the quality

lity of the hollownes.) I presently perforated the bottome, and drew out the Needle. The matter being evacuated by the passage opened, I put a Tent into the lower Wound, besmeared over with a whole Egg; and to the upper, one dipped in Betony Oyntment, and putting on a Diapalma Plaster, and Linnen four times doubled, I bound up the whole breast with the Bandage of *Softratus*, and afterwards kept open the Wound for some days, with a sharp hollow Tent made out of Linnen, covered over with the wax, till I consolidated the upper with the Ceratum Divinum, and cleansed the sides of the hollownes with Water and Honey, applying a new Spung pressed out of Red-wine, and with the Bandage that *Galen* calls the Breast-plate; in the last *Table S.* being straitly bound, it conglutinated; the hollownes growing together. I every day diminished the hollow Tent, and at last Cicatrized the Ulcer. This Operation doth best succeed when the hollownes hath not contracted any Callus, otherwise it doth not answer our desires.

OBSERVATION XLV.

Of an Empyema in the Breast, Cured by opening it.

IN the Year 1645. *Nicholas Rohler*, Waterman and Citizen of *Ulme*, was wounded with a Bakers Knife upon his back, between the 4th, and 5th Rib, reckoning from above, and his Lungs hurt, so that the Patient presently, besides spitting of blood, complained of a great difficulty of breathing, being sent for the first hour that he was hurt, I injected with the Seryinge an Astringent mixture into the Cavity of the Thorax, and kept the Wound open with a Tent; for preserving his strength, and stopping the blood. I prescribed an Electuary, (whose Ingredients may be seen in Observation 41.) and a slender Dyet. At my going away, I declared to the standers by, that the Patient would certainly die, unless there were very suddenly a new Wound made below the other; but they would not permit it. In the morning I proposed to the Patient, the Paracentesis of *Hippocrates*, who presently consented to it; and by that means, not neglecting other Remedies, he was very happily recovered, and hath lived divers years since in very good health.

OBSERVATION XLVI.

IN the Year 1631: *Valentine Dettelbacher*, a Baker of *Ulme*, at the Sun Inn, thrust a Knife into his own Breast, a little below the left Pap, but without hurting the Parts contained within. Whereupon I put in a Tent, covered over with the common Astringent, and Linnen dipped in black rough Wine, and pressed out; and bound it up with the Bandage of *Sostratus*. Which being done, I gave him a Laxative Clyster, and ordered blood to be taken from his right Arm. Afterwards, the matter being evacuated, partly by the Wound, and partly by Urine; I consolidated the Wound, by the help of inward, and outward Remedies formerly mentioned; as Injections, Oyniments, Emulsions, and Vulnerary Decoctions.

OBSERVATION XLVII.

Of a Wound on the Breast, penetrating through the Midriff, into the bottom of the Stomach.

ON the 12th. of August, 1645. *Melchior Frick* a Fuller of *Ulme*, was Wounded by a certain Gardiner, not only in the Head, and Nose, of the Cure of which see, *Tab. XXXII*, and *Observation XXII*. But also in the Breast, five Fingers breadth below the left Pap. The Wound on the Head, and Nose, *Elias Walther* a Chyrurgion, did presently bind up with Astringents, And perceiving a third Wound on the Breast, he ordered them to send for me; being come, and about to search the Wound made upon the Breast, I could by no means get into the Cavity of the Thorax; For the Wound was closed up, by reason that the Situation of the Muscles was changed, which were Wounded; While I was searching the Wound, he Vomited up a great quantity of blood, and fainted away; so that he seemed rather to stand in need of Divine, than Humane assistance. This Vomiting did intimate to me, that the Stomach was Wounded; and consequently the fleshy part of the Diaphragme, and

that the Breast was Perforated. Whereupon making known the danger to the standers by, I put a Tent into the Wound, with the usual Astringent, and applyed the simple Liniment. I bound up the Thorax with the Bandage of *Sostratus*, *Tab. XXXVIII. Fig. VI.* On the second day, at five in the morning, the Patient Vomited again two measures of blood mixed with Wine; and after that, all that he had taken down. It was therefore demanded (seeing that the Wound of the Nose did not Penetrate into the Nostrils, so that the blood might run down through the Palate to the Throat, and into the Stomach.) from whence that Vomiting of the blood and meat, should proceed. To which I answered, that although the Wound being closed did not admit of any passage into the Breast, discoverable by the Probe; and that although there was no apparent Wound in the Belly, yet these Symptoms which hapned upon the Wounding of the Breast, did sufficiently prove, that the Sword did Penetrate into the Stomach through the Intercoastal Muscles, and the fleshy part of the Midriff (and if the Nervous part had been Wounded, greater Symptoms would have afflicted the Patient.) That the Pleura was Perforated, was evident from the Flux of blood inward into the hollow part of the Breast, and from the cleanness of his Shirt: for if the Breast had not been Perforated, he would without doubt, have bled outwardly, which must have tinged his Shirt of a very red colour: neither doth it make any thing against this Conjecture, that the Patient never complained of any streightness of his Breast, or cough: for the blood which might cause Symptoms, passed through the Wound of the Midriff, into the Cavity of the Belly, where being digested, it strove to find a passage by siege. The Wound of the Stomach was indicated, by the Vomiting of blood, and what was taken down by the loss of Appetite, and pain about that Region. For these reasons I took greatest care of the Stomach, not neglecting the other Wounds, and gave him often in small quantity Consolidating Drink, and Medicines; least by too great a quantity his Stomach might be distended, and Vomiting provoked. I kept up his strength, with two Glsters every day, made of fat flesh Broth, and the yolk of an Egg; his Drink was Pomgranate-Wine, and his Medicine, old conserve of Roses, mixed with Poulder of Mastick.

Take of

Old Conserve of red Roses four ounces.

Choice Mastick in fine Poulder half an ounce.

Syrup of Comfrey as much as sufficeth.

Make them up into an Electuary.

Of which he took the quantity of a Wallnut, morning, and evening

ing, I anointed the outward region of the Stomach, with Astringent
Oyls.

Take of

Oyl of Roses,

Oyl of Mastick,

Oyl of Quinces, of each half an ounce:

Oyl of Worm-wood three drams.

Mix them.

And cured the Wound in the Breast as a simple Wound.

On the 7th. day, the Patient had a stool of Purulent matter.

On the 8th. the Wound on the Breast was consolidated.

On the 14th. and afterwards the Patient drank Consolidating Li-
quors, and kept them without pain.

OBSERVATION XLVIII.

Of a Fistula in the Breast, Cured by Corrosives.

IN the Year 1643. *John Jacob Welf*, a young man of *Heilbrun*, had a hard Swelling on the right side of his Breast; which coming to suppuration, and being ill cured, degenerated into a Fistula; which the Chyrurgions of *Heilbrun* left as desperate. The Patient coming to *Ulm*, desired my advise and help, which I promised; and after Generals, for discovering of the quality of the Fistula, I dilated the narrow Orifice with the Pith of Elder strongly wreathed, till it would admit of the round Probe, *Tab. VIII. Fig. VI.* wherewith I felt the Bone rough. To consume the hardness of the Fistula, I put in a Style, dipped in this following Oyntment.

Take of

Henbane-seeds powdered one scruple.

Burnt Alum,

Burnt Vitriol, of each half a dram.

Butter washed in Plantain water, as much as sufficeth.

Mix and make them into an Oyntment.

The Callus being extirpated, I put a Tent into the Fistula: the
top of which, being moistned in the Decoctum Divinum, I sprinkled

over with Euphorbium powdered: the rest of it I covered with this Oyntment.

Take of

Betony Oyntment one ounce.

Ægyptiacum half an ounce.

Mix,

And make them into an Oyntment, hindring the breeding of any Callous substance. After two months the Rib threw off Scales, which being taken out, I diminished the Tent every day dipped only in Betony Oyntment, till the Ulcer being incarnated, it was requisite to Cicatrize it with the Ceratum Divinum; with these outward Medicines, and a purging Wine, the Patient recovered his former health, and left *Ulme*.

OBSERVATION XLIX.

Of a Wound on the Breast Dilated with the Knife.

ON the 22th. of November, *John George Costnitzen*, a Cloak-maker of *Ulme* received a Wound on the left-side of his Breast, between the sixth and seventh Rib, without hurting of the inward parts, but so narrow that a Tent could not be put in. Being sent for, I presently Dilated the Wound with a Knife, *Tab. XII. Fig. I.* or *Tab. XXXVII. Fig. V. E.* whereby blood slipped into the Cavity, and causing the streightness of the Breast may be conveniently evacuated: as much blood being evacuated as his strength would bear, I put a Tent into the Wound, made of raw Flax, dipped in a Medicine, to stop the blood, and fastned to a long Thread: after a laxative Glister, a Chyrurgion took away blood from him, out of the Median Vein of the lett. arm. The following days, morning, and evening, I unbound the Wound; and letting out a convenient quantity of blood, I put in a Tent, dipped in the former Digestive: till all being evacuated, the Wound digested good matter. Afterwards I put in a little hollow Pipe, made of Linnen, covered over with Wax, and anointed with a Sarcotick, which I made every day better, and shorter, than other, till the Wound being filled up with Flesh, it was fit to be Cicatrized with the Ceratum Divinum.

OBSER.

OBSERVATION L.

Of another Wound on the Breast, Dilated with the Knife.

ON the 5th. of December, Adam N. a Barber, came to me, and told me, that the most Reverend Mr. Snitzer, Parish Priest, in the Village of *Eingen*; the day before, about Supper-time, had been Wounded by a Souldier of the Emperors, with two Wounds; of which, one was on the right-side of the lower Jaw: the other on the Back, near the Back-bone, between the third and fourth Rib, (in that place in which *Hippocrates* used to make, the Paracentesis) of the right-side, Penetrating into the Cavity, as far as the uppermost Rib of the same side, a little lower, than where the Clavicle is connected to the top of the Sternum, Wounding the Lungs, and the intercostal Vessels. Upon which, these Symptoms followed, great faintness, difficulty of breathing, cold sweats, and very great pains about the Breast. The wound in the Back, a Barber dressed with a Tent, dipped in the white of an Egg, putting in only an Ear-Spoon, between the fleshy Membrane and the Muscle; and applying the Stick Plaster of *Crollius*. The Wound in the lower Jaw was simple, but the difficulty of breathing was very troublesome; and the pains very great on the Breast, both before, and behind; by reason that the intercostal Vessels were Wounded. I searched the Wound which was narrow, with a blunt Probe, and went into the cavity of the Thorax: a sign there was great quantity of blood collected therein.

Whereupon I presently cast in this following mixture, with a Syringe, into the Cavity of the Breast, to stop the blood.

Take of

The Astringent Powder of *Galen* one dram.

Chrysolite prepared one scruple.

Four whites of Eggs.

Plantain-water, as much as sufficeth.

Mix them for an injection.

And put a Tent into the Wound, to keep it open, done over with a thick Astringent; and over it applied Linnen pressed out in Red Wine, and the Bandage of *Sofratus*, *Tab. XXXVIII. Fig. VI.* to keep in the Tent, and hinder inflammation.

For the stopping the blood, and keeping up his strength, he used this Confection.

Take of

Conserve of Comfrey six drams.

Old Conserve of Roses one ounce.

Trochies of Sealed Earth.

Trochies, of Amber, of each a scruple.

Bole-Armenick prepared, two scruples.

Prepared Pearl half a scruple.

Tablets of Sugar of Roses, and

Syrup of Pomgranates, as much as sufficeth.

Mix them, and let the Patient take often of it in a day.

For his thirst I prescribed a cooling, and Astringent Julep.

Take of

Syrup of Pomgranates,

Syrup of Myrtils, of each an ounce and half.

Speedwel-water,

Plantain-water,

Self-heal-water,

Succory-water, of each three ounces.

The Species of Diamargariten Fligidum half a dram.

Mix them.

In the Afternoon, he took some Grains of the *Opiate Laudanum*, with the Magisteries; which caused him to sleep four hours quietly. On the third, the Patient took for a pain in his Belly this Anodine, and Laxative Glisten.

Take of

The Roots of Marsh-mallows,

Setfoyl, of each half an ounce.

The Leaves of Mallows,

Agrimony,

Speedwel,

Violets,

Flowers of Camomile, of each an handful.

Seeds of Flax,

Fenugreek, of each four drams.

Annis,

Fennil, of each a dram and half.

Raisons half an ounce.

Boyl them in a convenient quantity of Fountain water to ten ounces, add to it being streyned out, Solutive hony of Roses three ounces.

Oyl of Violets two drams and a half.
Mix them, for a Glister.

With this he voyded twice bilious and ferous matter. After the coming away of the Glyster, the liver vein was opened on that side he was hurt, and four ounces of blood taken away. At 3. of the Clock in the Afternoon, I took out the tent, but nothing came out by reason of the narrowness of the wound, which I dilated with the incision knife, *Tab. XXXVII. Fig. V.* So that the matter collected in the Thorax found a free passage. After the dilating the wound in pint of blood flowed out, so hot, that it burnt the Patient more a coming out, than if it had been a lighted Candle. A pint of blood being taken out; I injected in a mixture to stop the bleeding veins, and arterys: and put into the Wound a tent, tyed to a thread; and covered over with a convenient Medicine; for mitigating the pain of his breast I ordered this oyntment.

Take of

The Pectoral Oyntment, one ounce.

Oyl of sweet Almonds.

Oyl of Camomile.

Oyl of Earth-worms of each a dram and half.

Mix them.

On the 4th. day. By reason of the bloud contained in the Thorax, the Feaver was greater than the days before; Loosening the bandage of *Softratus*; and taking out the tent, a pint of blood came out; and at seven of the Clock at night, a pint and a half more, about ten at night, he took this following Emulsion, upon which he slept again three hours.

Take of

Melon seeds, one ounce.

Lettice seeds,

White poppy seeds, of each a scruple.

Strawberry water,

Burnet water.

Speedwell water, of each four ounces.

Make an Emulsion, to which add half a dram of the Species of *Dramargariton Frigidum*, and two ounces of Syrup of Violets.

N. 4

Mix

Mix them for two doses.

For his difficulty of breathing, and pain of the breast (which was caused by the great loss of Blood) he often took a spoonful of this following mixture.

Take of

Speedwel water, three ounces.

Burnet water,

Succory Water

Plantain water.

Black-Cherry water, of each half an ounce.

Bezoar stone, eight grains.

Lapis Hæmatitis or blood-stone, half a scruple

Sealed earth, one Scruple

Red Corall.

Magistery of Pearl, of each half a scruple.

Pearl tablets half an ounce.

Mix them, and put them into a glass.

On the 5th day, the wound being unbound a pint and a half of blood flowed out again, his breathing was more free than the days before: therefore I prescribed this vulnerary Decoction.

Take of-

Whole barley half a pugill,

The leaves of Strawberies.

Peruinkle.

Bugle.

Burnet.

Speedwell.

Succory.

Foalefoot.

Moufe-ear.

Vervain.

Horse-tail, of each half a handful.

Madder roots.

Tormentill rootes, of each half an ounce.

Liquorice, a dram.

Fountain water six pints.

White-wine two pintss

Boyl them halt away, and in the end, add to ounces and a half of hony of Roses. streyned. Streyn it out, and take four ounces every morning, at seven of the Clock, and three ounces at four in the After-noon;

noon; his drink was Barly water boyled with the Vulnery herbs. On the 7th. he was somewhat better and a pint of blood flowed out. In the evening for a pain about his navel, the Glyster above described was injected, I covered over the tent to be put into the Wound, with this digestive,

Take of

Turpentine washed in Plantain Water a dram and a half.

Oyl of earth Worms one dram,

The yolk of an Egge.

Mix them, into the form of a Liniment.

On the 7th. day, his pulse was equal and both in the Morning, and Afternoon, nine ounces of Matter and bloud mixed together, came out,

On the 8th. day, a Pint of pure Matter came away: the Patient complained of a Cough, for which I prescribed this Lohoch.

Take of,

The Lohoch of Fox Lungs.

The sound, and well experimented Lohoch of each six drams.

Syrup of Folesfoot

Syrup of Red Roses, and

Syrup of speedwell, of each an ounce.

Syrup of Hyfop, half an ounce.

Pouder of Hyfop, an ounce and an half.

Flower of Brimstone, two scuples.

Trochies of Spodium, half a dram.

Mix them, to be taken with a Liquorish stick.

In the mean time for the stinking of the matter, Injections of the decoction of Scordium, Barly, and hony of Roses Streyned, were not neglected, On the 10th a Pint of digested matter came out of the cavity of the Breast, and the Patient was better than the day before. On the 11th. half a Pint of very good digested matter came out of the Wound. with some pieces of the lungs, in which some branches of the Aspera Arteria were distinctly to be seen.

On the 12th. and 13th. The matter which came out was digested, the Patient for a Cough, and bitterness in his mouth, took this following Bolus two hours before Dinner.

Take of

Cassia newly drawn one ounce.

Speciers Diamargariton Frig. half a Scruple.

Tro-

Trochies of Agarick two Scruples.

Rubarb one dram.

Make it into a Bolus with sugar.

This gave him three or four stools. On the 14th. He was better than the days before. On the 15th. Four ounces of stinking matter flowed out ; and therefore, I washed the Cavity of the Thorax with the former injection. On the 16th. It came out in a lesser quantity, and the stink was not so great. On the 17th. The Urine ceased to be bilious, the Patient complaining of a Cough I ordered him this Lambitive.

Take of

Comfry roots boyled, bruised, and passed through a sieve ;
two ounces,

The Species of Diatragacantum Frigidum.

Juice of Liquorice.

Penidice of each four drams.

Syrup of Liquorice.

Syrup of Violets of each as much as sufficeth.

Mix them. On the 18th. The Cough and stink abated. so that the injection came out unaltered. On the 19th. The Patient was better, the Urine also was good. On the 30th. The Patient complained of a pain of the wound; and looking into it, I found the pipe thrust out, by very good flesh ; for that reason therefore and because there came out no more matter, I removed the pipe and put in a tent dipped in Betony Oyntment, and injected twice a day of this following decoction to consolidate and strengthen the inward parts.

Take of

Whole Barly half a handfull.

Comfry roots.

Setfoil roots of each four drams.

Of these herbs,

Speedwell,

Burnet.

Moufe-ear.

Ladies-mantle.

Saracens Confound.

Bugle.

Vervain.

Horsetail.

Peruinkle.

Strawberries.

Scor:

Scordium of each half a handfull.
The feeds of Succory half an ounce.
Fountain-water six pints.
White-wine one pint.
Boyl away a third part, and in the end add.
Hony of Roses streined, an ounce and half.
Mix them for an injection..

On the 36th. The wound was consolidated, and the patient restored to his former health, went abroad.

OBSERVATION LI.

Of the happy Cure of an Empyema, by Diureticks.

ON St. *John Baptists* day the 24th. of *June*, 1638. At seven in the evening, Captain *Maschque* having Drunk hard, was Wounded in a Duel, by Mr. *Green*, a Commissary, upon the right Pectoral Muscle, two Fingers breadth below the Clavicle. The Wound Penetrating (through the Cephalick and Breast-vein) into the Cavity of the Thorax, with great loss of blood, Swoundings, Convulsions, Snorting, cold Sweats, no Pulse; and that particular Convulsion of the Muscles on both sides of the Mouth, called the *Sardonian Laughter*; and so he lay for above half an hour, without sense, or motion. In which dangerous Case, by reason of the forementioned Symptoms, I could do no less, than tell his dear Wife and Daughter, that these were the forerunners of death. And the 9th. Aphorism of the seventh Section of *Hippocrates* came into my mind, loss of the understanding, or Convulsions after bleeding are dangerous: yet I ordered these remedies.

Take of

Black-Cherry-water four ounces.
The Anhalt Cephalick Spirit one dram.
Bezoar Stone one scruple.
Red Corral prepared half a dram.
Crysolite prepared one scruple.
Pearl Sugar half an ounce

Mix them.

For Revulsion sake, I caused a sharp Suppository to be put up, and
ap.

applied to the Nostrils and Pulse, the sweet smelling Water of *Euchus*, and Rue Vinegar. I bound up the Wound with a Tent of *Flax* dipped in the white of an Egg, and sprinkled over with the *Astringent Powder*, and Linnen pressed out in Red Wine, and *Galen's* Bandage for the Clavicle; and being so bound up, he passed the whole night quietly, and slept out his Drunkenness. The next day for a streightness on the right-side, and pain about the Region of the Diaphragme, the Median Vein on the same side was opened, and four ounces of blood let out: in the evening for a sharpness of Urine, he took half this Emulsion.

Take of

Melon-seeds an ounce.

Burnet-water,

Strawberry-water,

Speedwel-water, of each two ounces and a half.

Black-Cherry-water two ounces.

Red Corral prepared half a dram.

Pearl prepared a scruple and a half.

Chrysolite prepared ten Grains.

Sugar-candy, and

Syrup of Violets, of each an ounce.

Mix them for an Emulsion.

I put a Tent into the Wound, covered with a Digestive, which was made of the yolk of an Egg, and Turpentine washed in Rose-water, sprinkled over with prepared Chrysolite, and over that a Bolster, pressed out hot in Red Wine, and the Bandage of *Galen*. On the third day he took this following Glister.

Take of

The Leaves of Mallows,

Violets,

Pelitory of the Wall,

Speedwel,

Flowers of Camomile.

Mallows, of each half a handful.

Flax-seed half an ounce.

Melon-seeds,

Citron-seeds of each three drams.

Boyl them in a sufficient quantity of Water to eight ounces; and add to it being streined out,

Hony of Violets two ounces.

Leni.

Lenitive Electuary one ounce.

Oyl of Violets,

Oyl of Camomile, of each an ounce and half.

Mix them for a Glister.

From this he had four stools. I dressed the Wound, by reason of a Flux of blood, with prepared Chrysolite, and the Astringent Powder of *Galen*, in the white of an Egg, by reason of faintness, the Patient took often in a day, a few Grains of the Confection of Alkermes, which did relieve him.

In the evening after the taking of his Emulsion, he complained of heat of Urine, and looking upon it in a Glass, I found Purulent matter at the bottom. The pain and heaviness about the Liver, and Midriff, ceased, and he slept quietly all the night. On the 4th. The Feaver abating, and the matter in the Cavity of the Thorax tending towards the Passages of Urine, I thought it expedient to prescribe this Vulnerary Decoction.

Take of

The Ashes of Crevis a handful and a half.

Burnet,

Peruinkle,

Speedwel, of each two handfuls.

Strawberry-water one Pint.

Small Wine seven Pints.

Boyl away the third part, and add in the end two ounces of Hony of Roses strained.

This Decoction was mixed morning and evening, with the Emulsion; which did wonderfully derive the blood in the hollow part of the Breast, to the Passages of Urine. Out of the Wound there flowed clotted blood; and I injected into the Cavity of the Breast with a Syringe, the Astringent and healing Decoction, described in the 50th. Observation.

Then I put into the Wound, a Pipe made of Linnen, and yellow Wax; and over it the Cerate of Diapalma, and a Sponge filled with Red Wine, pressed out, and the Bandage. On the 5th. and 6th. The Patient was better again; But on the 7th. he slept not, and complained of a pain of the Wound, and of all that side, looking upon the Wound, the Pipe, or hollow Tent made of waxed Linnen, was out of the Wound: so that the matter contained in the Breast, caused pain, and found no passage; but the matter being evacuated, the pain decreased. The Patient complained of a bitterness in his Mouth: for which I prescribed this Syrup.

Take

Take of

The best Manna an ounce and half.

Extract of Rubarb one dram.

Crem of Tartar two scruples.

Speedwel-water, as much as sufficeth.

Mix them into a Liquid Syrup.

With this he voided thrice bilious matter : in the evening, when the pains about the Wound, the Liver, and Midriff, remitted ; we lookt upon, and felt the lower Belly, which was distended with Wind ; and therefore he made use of the former Glister, which agreed well with him, and he slept the whole night accordingly. On the 8th. The Urine was troubled, and like to that, of those who have Catarrs : from whence it seemed that the pain the day before, took its original from the Head, rather than from the Wound. On the 9th. He used the Emulsion, with the Vulnerary Decoction : the Wound was dressed as the days before ; only that the Tent was covered with the former Digestive, sprinkled over with the Powder of Aloe, Frankincense, and Chrysolite, a Vulnerary Decoction, being first injected. On the 10th. 11th. 12th. and 13th. He went on very well. On the 15th. His Urine was clear, and he rested well all the night : good white matter came out of the Wound ; and therefore I drew out the Pipe, or Tent, made of waxed Linnen, dressed it with Betony Oyntment, and put in again. On the 16th. He rose up, and walked about a little, and some white digested matter came out of the Wound. In the evening he made use of a Vulnerary Decoction, and an Emulsion of Melon-seeds. On the 17th. and 18th. He went on well, and little or no matter came out of the Wound : Therefore I took out the Tent, and applied Lint, and the Cerate of Diapalma, and a new Sponge pressed out in Red Wine. On the 20th. and 22^d. I Cicatrized the Wound.

OBSER-

OBSERVATION LII.

Of an Ulcerated Cancer, of the Brest cut off with the Knife.

THE most Religious Lady, *Anna Sibylla*, Abbess, of Urspring, about 47. years of Age, of a hot, and somewhat dry tempera-
ment, five years since began to be troubled with a suppression of
those, upon which there arose, a hard black painful swelling upon
her left Breast; so that she was forced to desire the help of a Barber;
who not understanding the cause, endeavoured to dissolve the hard-
ness with moistning and softning medicines; by which means he was
so farr from doing her any good, that he rather præcipitated the mi-
serable Lady into a greater calamity; and *Sennertus* affirms that a
Cancer by Emollients is exasperated. And seeing the Tumour gave
not way, The Barber proposed the cutting of it out; and while he
was cutting, seeing the blood flow out of the breast, he ran away
more fearful than a hare, and left the Abbess all bloody and almost
dead; so that the Sisters of the Monastery, were forced to stop the
blood as well as they could, and keep up her Spirits with Cordiall
waters. Upon this incision the whole breast began to be ulcerated and
to swell into a prodigious bigness; with a smell as if vinegar and flesh
were mingled together, by reason of the nearness to her
heart; her feaver was high, her pain extreme; which she could not
suffer any longer, but came to *Seffling*, and sent for me, and the
most eminent Dr. *Johannes Regulus Vellinger*, my most honoured re-
lation, and desired our advice, and help. Upon our first visit and
looking upon it; from the smell, the humour, and original, we jud-
ged it to be a Cancer, and that it could not be otherwise cured, than by
cutting off the whole breast. And gave the Abbess notice of it, en-
couraging her to sustain it resolutely, hoping for a certain cure (seeing
that it had not taken too deep root; and the time of having her
terms was now past with her.)

Upon her consenting to it I washed the ulcerated breast with the
divine Decoction, by reason of its great stinking, putrefaction, and
pain; and sprinkled upon it a powder made of burnt Alumet, prepa-
red Tuty, Chrysolite, and Scordinm, and over it the Ceratum
Oxeleum mixed with the simple Liniments.

Take

Take of

The ceratum Oxelæum
Linimentum simplex, of each an ounce.
Oyl of Myrtles two drams.
Mix them, in a leaden mortar.

The description of the Linimentum simplex.

Take of

The juice of Nightshade newly pressed out.
Oyl of Roses, of each twenty ounces.
Boyl them according to Art till the juice be Boyled away,
and add to it streyned out, Litharge of Gold.
Cerufs, of each a pound.
Mix them, according to Art into the form of a Liniment.

The Cerate of Oxelæum is thus prepared.

Take of

Common old Oyl one pound.
Sharp Wine Vinegar,
Litharge of Gold, of each half a pound.
Mix them upon a gentle Fire, till they come to the consistence
of a Cerate

We prescribed a Laxative Wine of ingredients, to bring away Water, and Gall: with which at several times, the bad humours were Purged out. Then the Median Vein was opened in her left Arm, and a small quantity of blood taken out, that we might see of what quality, or consistence it was; which we found watery, and half putrified, without a due concretion of Fibres; and therefore she made use of an Electuary of Trochies of Vipers.

Take of

Conserve of Borage an ounce and half.
Trochies of Vipers half an ounce.
Syrup of Corral as much as sufficeth
Mix them.

So that the serous and malignant matter being brought from the Center to the circumference, the Patient grew better upon the diligent use of these remedies; and the ill smell and corruption ceased. Her Body being thus prepared and Purged; the Lady Abbess did earnestly desire her Breast might be cut off; and least that by any longer delay, the Ulcer might spread inwardly. Upon the 25th. of Jun, 1641. I prepared all things necessary for the Operation, and the

the next day appointed it to be cut off: giving the Patient a draught of Cordial Waters, Cinamon, and Alkermes; we went about the work; and although in cutting off the whole Breast, a long sharp two-edged Needle should be made use of, carrying two Threads, to be passed through the bottom of the Breast; and then the Threads on both sides to be tyed strongly together: and if that be not sufficient, another Needle to be passed through, and the Threads tyed in the like manner, as is plain to be seen in, *Tab. XXXIIX. Fig. I.* Yet to avoid this great pain which ariseth from this double passing of the Needle; and understanding the Anatomy of the Part. I invented a new Ligature with divers heads: with which, without the passing of the Needles, having marked out the circumference of the Tumour with Ink, at once drawing (least that might happen to me, which afterwards in the 5th. Observation you will hear hapned to the Cutter for the Stone) I took off the Breast, with a very sharp Knife, from the Pectoral Muscle, Root and all: and did not presently stop the blood; but after that all the black and burnt blood, had flowed out of the Neighbouring Veins, and Arteries: only to strengthen the Part, I lightly touched it with a red-hot Iron; and then applyed the Astringent Pouder of *Galen*, and prepared Chrysolite, made up with the white of an Egg shaken together, and spread upon Lint, and the Bandage which *Galen*, and other Greek Authors, Name the Cataphrasta, or Breast-plate. On the 27th. of *June*, the blood being stopped, I did not apply any Digestive, by reason of the moistness of the Part, but the Ceratum Divinum. On the 28th. she had no pain; nor any sign of inflammation; yet upon the 29th. she took a draught of Purging Wine; and on the 30th. part of the Electuary of Vipers, to dissipate, and carry off the Reliques of the bad humours. On the 30th. of *June*, she was brought to *Ulme*: where she went on very well, till the 4th. of *August*, and compli ed of no bad Symptoms. On the 6th. I observed some white Caruncles; and asked the Lady if she had not committed some fault in her Dyet? She answered, that upon the perswasion of the House keeper, she had taken a draught of Wine, which was prohibited. On the 8th. Her Voice was hoarse; and presently that of *Hippocrates* came into my mind, in his Book of the Glandules: That those, who by a Disase, or any other Calamity, have their Breast taken away, their Voice is harsh, and rough. On the 9th. Being bound, she made use again of the Purging Wine, mixed with Manna. On the 13th. For diversion-sake, she knit Cotton Gloves; and upon the continual motion of her Arms, an Herpes Miliaris, seased upon the lower part of her Breast. Upon which this sort of exercise was forbidden, and the Patient took Purging Wine; that the bilious, and sharp matter, might be brought from the Circumference, to the Center; and that way carried out of the Body. On the

the 14th. of *August*, least these sharp humours might fall upon any of the Principal Parts of the Body. I ordered an Issue to be made for revulsion sake, in her left Leg above the Knee, and one in the right Arm. On the 16th. By reason of the great heat of the weather, and the itching of the Herpes, there came forth a fleshy excrescence: she took this Syrup.

Take of

Syrup of Roses, two ounces.

Extract of Rubarb, three scruples and a half.

Diacarthamum, two scruples.

Crem of Tartar, one scruple.

Succory water as much as sufficeth to make it into a liquid Syrup.

This gave her nine Stools, and brought away plenty of gall: I applyed to the fleshy excrescence, a powder made of four scruples of Roche-Alume, and a dram of Tutty, and Chrysolite, upon Lint; and to the Herpes, by reason of it's great itching, after fomenting it with the decoction of Mallows in fair Water: the *Ceratum Citrinum*; by the use of which remedies, the excrescence was consumed and the Herpes, with all the itching, vanished. On the 7th. of September both the issues performed their office. From the 9th to the 15th. she took the Aloe Pills of *Hie. Fabrici. ab Aquapendente* for a pain of her head, and being bound: and afterwards was in very good health, and the part effected was cicatrized. On the 28th. of September, a vein was opened to see what manner of blood she had; which was very good, and red without any corruption, On the 6th. of October, she left *Ulme* in very good health, and very joyful.

OBSERVATION LIII.

*Of a Wound in the groin, and yard, made by a Bullet,
Cured.*

IN the month of *July* 1633. *N. N.* a Cornet of Horse was wounded in a fight, with a Pistol Bullet in the right thigh near to the groin, in the passage of Urine, and in the left thigh; for the Bullet perforating at the root of the yard, ran along the Urinary passage and

hurt

hurt, the left thigh also. Being sent for on the third day, and the Patient complaining of the laceration of the passage of Urine, of the inflammation of the yard, and of a Priapism, for fear of a gangrene I ordered him a lenitive Glyster, and a spare diet. (which doth much avail in preventing and curing all inflamations) Into the Wound on the right side of the groin, in the Yard; and in the left thigh, I injected, through a siphon, Oyl of Violets seven times washed in Carduus water, and water of Mallows; mixed with a small quantity of hony of Roses streined: and put in Tents dressed with the same Medicine; and applyed over it, the Linimentum simplex, and a Cataplasim, made of Barly Meal, Bean Meal, Crums of bread, simple oxymel, oyl of Roses; and oyl of Violets; and bound up the wounded parts with a convenient bandage,

On the 4th day, for a great inflammation of the yard; and a Fever, the liver vein of the right Arm, was opened, and six ounces of Blood let out. On the same day, in the afternoon, the Saphena, of the right foot, was opened, and five ounces of Blood taken away. At night for a great pain in the Yard, and almost a suppression of Urine, he used this Emulsion.

Take of

Melon Seeds, six drams;

Lettice seeds.

Poppy seeds, of each one dram.

Seeds of the Chaste Tree, two scruples.

Water-Lilly Water.

Strawberry water.

Sorrel water, of each three ounces.

Make an Emulsion, to which add an ounce and a half of Sytup of Violets:

Mix them.

The 5th day, he complained of a very great pain upon making water; and an eschar began to separate in the Urinary passage, and in the other wounds: therefore I cast in this mixture with the siphon.

Take of

Rose water.

Mallow water.

Carduus water, of each two ounces.

Bole-Armenick prepared.

Burnt Harts-horn, of each 3 dram.

Chrysolite prepared (for the stopping of the Blood) half a dram.

X z

Oy

Oyl of Violets one ounce.

Mix them.

Into the wound of the Urinary passage, instead of a tent, I put through the orifice of the Glans, a Golden Catheter. *Tab. XII. Fig. XVI.* daubed over With the *Linimentum simplex*: I applied to the groin, being anointed with Oyl of Roses, fat wool; and ordered the loyns to be anointed with this oyntment.

Take of

The cooling oyntment of Galen, two ounces.

The oyntment of the Countess, half an ounce.

Oyl of Roses, two drams.

Mix them.

On the 6th. by reason of an obstruction of the Urinary passage, from part of the Eschar, the Patient could not make water through the Yard, therefore I took hold of it with the teeth of my pincers and extracted it. On the 7th. the pain abated, and the Patient was somewhat better than the days before. On the eighth the Patient drank Wine, and played with the Maids. At night he complained of a Priapism, and inflaming pain of the Yard: for which, and for bleeding, he made use of his Glyster, and Emulsion. I anointed his reins with the astringent Oyntment, cast in a Mixture into the Yard; and put the pipe before mentioned covered with linnen and the linimentum simplex, into the passage of Urine. After the injection, I applied oyl of Violets, and oyl of Roses, to the Wound of the thigh and groin. On the 9th. the inflammation continuing the *saphena* of the left foot was opened again, and all Medicines were applyed as the day before. On the 10th. the patient was better and the Eschar being taken away I injected, with the siphon, this following liquor into the passage of the Urine,

Take of

Plantain-water,

Self-heal-water,

Rose-water,

Carduus-water, of each an ounce.

Prepared Tuty two drams.

Lapis Hæmatitis one scruple

Bole-Armenick prepared half a dram.

Mix them.

I dressed the Wound in the Thigh and Groin, with Digestives,
Mundifi-

Mundificatives, Sarcoticks, and Epuloticks. He passed the 11th. day without any pain, or trouble. On the 12th. being bound, he took Bolus's.

Take of

Cassia newly drawn one ounce,
Manna two drams,
Pouder of Liquirice one ounce.
White Sugar as much as sufficeth to make them up.

These gave him four Stools. On the 13th. For the Gonorrhœa, I prescribed this confection.

Take of

Conserve of Mallows,
Violets,
And Succory-flowers, of each an ounce.
Seeds of the chaste Tree a dram and half.
Letice-seeds one dram
White Poppy-seeds four scruples.
Syrup of Poppies as much as sufficeth to make it up.

Of which he took morning and evening, before the Emulsion, the bigness of a Chesnut. On the 14th. A thick slimy matter obstructed the Yard, near to the Glans, so that the Urine came out at the Wound in the Groin: therefore I pulled out the tough matter with the Pincers; and after the injection of the Liquor last prescribed, I put in the Pipe, dipped in the Linimentum Simplex, and bound it in with a Thread, least it should fall out. On the 15th. 16th. 17th. 18th. and 19th. He received much benefit from his Medicines; and white, soft, equal matter came out of the Wounds, in small quantity. Upon which, red Flesh began to grow. On the 22th. and 23. instead of the Pipe, *Tab. XII. Fig. XVI.* I daubed over a Wax Candle with the *Cera-um Divinum*; and, putting it in, consolidated the Urinary Passage. In the time his Dyet was of Meat not hard of digestion, and made use of the cooling Emulsion. On the 27th. The Urinary Passage was consolidated, and the outward Wounds of the Thigh, and Groin, were Skinned.

OBSERVATION LIV.

Of a Cancer in the Breast, ill cut off.

ON the 9th of December, 1643. By order of the Senate, I went with George Riedlin, and John George Bauler, Chyrurgions, to visit the Wife of Matthew N. who having a great pain on the left Arm, told us that N. N. a Lithotomist, in the third week after she was brought to Bed, without any preparation, or evacuation, cut with a Rasoer, a hidden Cancer out of her left Breast: in the presence of a certain Physitian of Ulme, and left two large Tumours, under the Arm-Pit, to be dissolved by outward Medicines. After twelve days the Chyrurgion applied a Caustick, made of Arsenick, to the former of them, which not quite eat it out; but caused such pains, that the humours coming to it from all parts, the Arm was distended strangely. Things being thus, I signified to her Husband, and the standers by, that she would not be recovered, either by Medicines, or by Instruments; but would certainly perish, those Tumours being left; which hapned in a short time: for her strength failing upon those Pains, would not admit of Purgings, nor could the pain be mitigated, by any Anodyne medicine. Both the Physitian therefore, and the Lithotomist did ill. First that they went about the Cure of a Cancer in the time of her lying in, when they could not Purge the Body of melancholly humours. Secondly in that they did not totally extirpate it (being ignorant of Hippocrates his thirteenth Aphorism of the second Section; *What is left of Diseases causeth Relapses*; but rather exasperated it with dangerous Arsenick, the Purgations of the Womb being diverted; and thirdly that they did not commit the care of it to Persons skilful in Anatomy (who after general remedies could have cut out Tumours, which are not deeply rooted without hurting the Vessels, or fear of a Relaps; or else would have excused themselves with the 38th. Aphorism of Hippocrates in the 6th. Section: *Who are troubled with hidden Cancers it is better not to heal them, for being healed they dye the sooner, and not being healed, they Spin out their Life the longer.*

OBSERVATION LV.

Of a small hidden Cancer in the Breast, disscussed with Medicines.

IN the Month of September, 1634. *Barbara Heylerin* a Country-woman of *Bermaringen*, shewed me a Tumour in her left Breast, caused by the suppression of her Courses: which seemed not capable of being extirpated by any remedies, but only by the Knife: for it had all the signs of the Cancer; as hardness, a sharp pain, roundness, inequality, black and blew, heat, and a Protuberance of black Vessels. The Patient refused to have it cut out; and *Amatus Lusitanus* will not have a Cancer touched with any outward Medicines: yet because I had known some, who by the use of choice remedies, had been delivered from hidden Cancers, I prescribed the Patient this to Purge melancholly.

Take of

The Confection of Hamech six drams.

Extract of black Hellebore one scruple.

Crem of Tartar, half a scruple.

The Decoction of the Flowers and fruits as much as sufficeth.

Mix them.

Begining to have pains in her Back, I ordered six ounces of blood to be taken out of the Saphena of the left foot. And this done, I Purged her Body, being as it were, Tinctured with black humours, with the Magistral Decoction in the last Table, *Let. E.* And after exact Purging, I applied to her Breast, the Cerate of *Johannes Praevotius*.

Take of

Millet-Meal two ounces.

Oyl of Roses stirred up in a Leaden Mortar three ounces.

Powder of Crude Lead half an ounce.

Golden Rod,

Sow-Thistle, and

X 4

Night

Night-shade Powdered, of each two drams.
 New Wax two ounces six drams.
 Pine Rozin ten drams.
 Mix them and make a Cerate.

Which in three Months space did insensibly dissolve the Tumour : in the mean time, seeing that her Courses, which had been stopped for two years, could not be brought down by remedies : I made her an Issue on the inward part of each Thigh ; to the end that the offending matter might be brought down to the lower parts ; and kept them open a year, least the humours should gather together again, and offend some other Part. The next year thinking her self to be very well, she unhapily healed up the Issues ; and began to complain again of the Tumour on her right Breast ; which being taken out with Instruments, she repeated the use of the Decoction, and renewed the Issues ; which I ordered her to keep it open as long as she lived, but whether she doth I know not.

OBSERVATION LVI.

Of the pains of a Cancer mitigated.

THE Wife of *Peter Hielbronner*, had a small hidden Cancer in her right Breast, and a great Ulcerated one in the left. The hidden one after the use of the Magistral Decoction, was diminished with the Ceratum Oxelæum stirred up in a Leaden Morter ; and the sharp pains of the Ulcerated Cancer were mitigated, with that most excellent Anodine for a Cancer, as long as she lived, to wit, with a mixture of the Linimentum Simplex, the Ceratum Oxelæum, and Oyl of Myrtles. The same Patient complained every year, of a very troublesome galling on the Hips caused by her being so fat : for when she walked, especially in Summer time, those Parts were rubbed, together excoriated, and inflamed. This excoriation the Patient her self cured, by often washing it in fresh water, in which, Mallows were boyled, and besprinkling it with this Powder easie to be had.

Take of
 Pomgranate Flowers,
 Red Roses,
 Red Sanders, of each three drams.

Campher half a dram.

Mix them

And make them into a Pouder, which doth also most speedily cure the inflammation, and excoriation in Children, proceeding from the sharpness of the Milk.

OBSERVATION LVII.

Of an ulceration and pain on the Breast mitigated by an Issue in the Thigh.

A Water-man of fourscore years of Age, complained of a great streightness, a violent pain, and blisters on the right side of his Breast. The Patient sent for a Chyrurgion, and desired him again, and again, to heal up those little Ulcers, which were very troublesome to him. Those Ulcers being healed; the pain, and streightness about his Breast returned; which went off upon the breaking out of his Breast. Things being thus, and being sent for to advise about it, I asked the old Man whether he had not formerly had old Ulcers in his Legs? to which he answered, that for ten years together he had a large Ulcer on his right Thigh, without any hindrance to him in going; and from the time that it was healed up, he was first troubled with a streightness, then a pain, next with blisters, and at last with little Ulcers about his Breast: for the revulsion therefore of these humours, I ordered an Issue to be made in that Thigh which was first Ulcerated, with the Instrument of *Julius Cessarius Placentinus*: about which there began to be an inflammation the next day; so that I encouraged the Patient to hope for a good recovery. The Eschar being come out, and the Issue performing its duty: the pain of the Breast, and difficulty of breathing abated: so that in thirty days the Patient was free from those Symptoms; and long after that enjoyed the health of an old Man, and went about his business, without any hindrance. From this I would have young Chyrurgions learn how dangerous it is, to heal up Ulcers of long continuance, especially in old Age; and with how great benefit Issues are made, on the inside of the Thigh; if by the error of the Patient, or Chyrurgion such Ulcers which free the Body from impurities, have been healed up.

OBSER-

OBSERVATION LVIII.

Of a Gunshot Wound in the back.

ON the 27th. of *January*, 1644. At three of the Clock in the afternoon *Balthaser Steiger* a Country-Man, of *Gegglingen* as he was carrying home his Wife from *Ulme*, A Souldier that was durnk shot at them, and at once wounded not only the Country-Man but his Wife also: so as they were forced to be carried back again to *Ulme*; Where a Chyrurgion bound up the Wounds till the day following. On the 28th. of *January*, the pain of the Wound being very great; I was called in by the Patients Friend, and found the Country-Man wounded with three Bullets: of which the first stuck obliquely in the hinder part of the head, about the Lambdoidal Suture. The second was drawn out about the eighth Rib of the Breast. And the third went so deep in a little above the Os Sacrum; that it could no ways be drawn out. We Dilated the Wound somewhat on the hinder part of the Head with Lint. The Wound on the Breast being of little moment, we dressed as a simple one; but the Wound near to the Os Sacrum, being very painful, caused so great an inflammation, that it did also affect the privy parts; and for stopping of the Blood we injected into it the white of an Egg stirred up with a Spatula: with the astringent Pouder of *Galen*, prepared Chrysolite, and Plantain water: for revulsion sake, a cooling Glyster was put up, and Blood taken from the Median vein of the right Arm. In the evening, the Patient took some spoonfuls of this Cordial water, and a cooling Syrup.

Take of

- Black Cherry-water,
- Burnet water, and
- Rose water, of each an ounce,
- Cinnamon water, three drams.
- The Anhalt Cephalick spirit, two scruples and a half.
- Red Coral, prepared, half a dram.
- Chrysolite prepared. half a scruple.
- Pearl Tablets, four drams.
- Mix them, and put them into a glass.

The

The cooling Syrup was this.

Take of

Syrup of Vinegar one dram.
Syrup of Juice of Citrons.
Endive water.
Water Lilly water, of each an ounce.
Prepared Pearl powdered, half a scruple,
Mix them, for one dose.

The Country-Man's wife was wounded with five Bullets, of which one entred below the left Ear, and passing under the skin, went out about the bone of the lower Jaw; the Second, Third, and Fourth; stuck in the Back between the Shoulders; but the fifth entred about the inward part of the Shoulder, and went out about the bending of the Arm. We dressed the wounds between the Shoulders, and about the Jaw-bone as simple, but that in the Arm as a Compound Wound: and for the great inflammation of the whole Arm, I put in tents dressed with this following digestive,

Take of

Turpentine washed in plantain water, one dram,
Oyl of Earth Worms, one dram.
A litle of the yolk an Egg.
Mix them,

Casting in first oyl of Violets and oyl of earth worms. and applyed Diapalma spread upon streight linnen covered over with the Linimentum simplex, and bound up the whole Arm with a cataplasm which was made of Barly meal, Bean meal, Crums of Bread, Oyl of Roses, Camomile, and Earth Worms, and red Wine; those Medicines we made use of till the seventh day, at which time the Eschar fell off, in the mean time she observed a very good diet, and took preparing and altering remedies.

On the 8th. day, she was better; and the pain and inflammation of the whole Arm ceased, and therefore we put Tents into the Wounds covered with this Liniment.

Take of

Turpentine washed in plantain water, one dram.
Pouder of Myrrhe.
Aloes, of each one scruple.
Chrysolite prepared half a scruple,
Hony of Roses streyned, a dram and a half.

Bal.

Balsom of Peru an ounce and half.
 Syrup of Red Roses as much as sufficeth,
 Mix them and make them into a Liniment.

We applied the Cerate of Diapalma, and a Sponge pressed out in Red Wine, and bound it up fitly with a Rowler, with two heads: the simple wounds began now to Cicatrize. On the 14th. The Wound on the Arm, and all the other were skinned; and the Patient being hapily recovered, went away to *Gegglinge*.

On the 3d. day, Although the hollownes in the hinder part of the Head of the Country-man was larger than the day before, yet we Dilated it with a Sponge twisted; washing the Wound, by reason of the ill smell, with the Decoctum Divinum. The pain and inflammation about the Os Sacrum, by the help of the Cataplasma above described, and the frequent use of Glisters, much abated. On the 5th. day the quitter of the Wound about the Os Sacrum was white, and digested. The Wound on the hinder part of the Head was deep, and the Patient complained of a great pain of the Head, about the Fore-head. On the 7th. day the pain and swelling about the Os Sacrum ceased; and upon bleeding at the Nose, the pain on the Fore-head went off. On the 8th. we put a Tent into the Wound of the Os Sacrum, dipped in the white of an Egg stirred up with this Pouder.

Take of

Prepared Chrysolite,

Lapis Hæmatites,

Aloe,

Bole-Armenick prepared, of each an ounce and half.

Mix them into a Pouder.

And bound over it the white Plaster. On the 9th. all pain ceased, and the Patient rested quietly the whole night. We put in a shorter Tent into the Wound about the Os Sacrum; and to the sides a Sponge pressed out in Red Wine lukewarm, and bound it up streightly with the Bandage. The Wound on the Occiput being still hollow, sent out serous matter without pain.

On the 10th. The Patient said that he had passed the night quietly, and the Wound about the Os Sacrum was better; and the matter generated was white, digested, and in a small quantity; he complained of a heavy pain about the Eyes, and a few hours after he bled at the Nose, whereby that heaviness abated; and the Patient said he was accustomed to this bleeding.

On the 11th. day, The Wound about the Os Sacrum was cicatrized.

On the 12th. I searched the Wound on the Occiput with an obtuse

tuse Probe ; and coming in obliquely between the Cucular and patient Muscle downward, I told the Patient and the Chyrurgion, that this Wound, by reason of the great Contusion, was still dangerous. Having rested again very well the whole night. On the 13th. Because that Souldiers Wintered in his House, he Rode home, the Wound in his Head not being yet consolidated : in the mean time the Chyrurgion visited him every day, and dressed the Wound. After ten days the Chyrurgion desired me to prescribe the Patient a Purging Potion, which I did ; and it gave him divers stools. The next day the Chyrurgion came again, telling me, that he was forced to lay open the Wound ; and that he very well understood the manner how to do it. February the 28th. he opened it, but with what Knife I know not. On the 29th. The Patient had a Feaver ; and on the first of March he took this purging Syrup.

Take of

Syrup of Roses an ounce and half.

Of Manna six drams.

Extract of Rubarb,

Diacarthamum, of each half a dram.

Magistery of Tartar, one scruple,

Black Cherry-water, as much as sufficeth.

Mix them and make a Liquid Syrup.

Which he Vomited up presently, and was not once Purged therewith. On the 4th. The Patient being worse, I was sent for to *Gegglingen*, and found him weak ; the Wound covered with an Erysipelas, the hollowness not laid open above the third Part, by the Chyrurgion : a little below it, a great hollowness, having escaped his knowledge ; and was untouched by the Knife. The Pericranium so Putrified, that with a blunt Probe, it might be easily separated from the Skull. The Wound being bound up, and the Patient recovering some strength, the Cephalick Vein on the same side was opened : out of which there came serous and half Putrified blood. Things being thus, I advised the Patient to be brought to *Ulme* again, in a Litter. On the 4th. Being in the City, I unbound the Wound, and found that the Erysipelas had spread it self, not only about the Wound, but all over the fore-part, and hinder-part of the Head ; so that, the Patient complained of a great pain of his Head, and could by no means open his Eyes.

On the 5th. For a great pain and inward heat, he took this cooling Glister.

Take of

Sorrel Roots ;

Marsha

Marsh-mallow Roots, of each half an ounce.
 The Leaves of Water Lillies,
 Violets,
 Mallows,
 Bettony,
 Flowers of Camomile, of each half a handful.
 Seeds of Flax,
 Citrons,
 Fenel, of each a dram.
 Raisins half an ounce.

Boyl them in a sufficient quantity of Water, and strain them, then
 add of,

Hony of Roses four ounces.
 Oyl of Violets,
 Oyl of Camomile, of each an ounce and half.
 Mix them for a Glister.

In the evening he took the cooling Syrup. On the 6th. He had a
 quiet night, and complained of Heart-burning, and great weakness;
 and therefore I prescribed this.

Take of

Conserve of Roses Vitriolated,
 Conserve of Violets, of each an ounce.
 Confection of Alkemes one dram.
 Citron Pill preserved, one dram.
 Syrup of the Juice of Citrons, as much as sufficeth.

Mix them and make them up into an Electuary.

Of this he took a little often in a day. The Wound cast out mat-
 ter half bloody, and the Pericranium appeared almost Putrified: al-
 though this Wound required a greater Dilatation, by reason of its hol-
 lowness: yet because of his weakness, it was not convenient to Di-
 late it; in the mean time, for the streightness of his Breast, and want
 of sleep, he made use of this Emulsion.

Take of

Melon-seeds half an ounce.
 Poppy-seeds one dram.
 Sweet Almonds two drams.
 Black Cherry-water.
 Water Lilli-water,
 Strawberry-water, of each three ounces.
 Make an Emulsion, to which add,
 Magistery of Coral half a dram.

Pearl

Pearl Sugar half an ounce.
Put them into a Glass.

On the 7th. day the Patient was better, the swelling of the Head, and Face abated. The Wound sent out digested matter: the lips were foul, and therefore the Oyntment of *Ægyptiacum* was applied; and seeing the Pericranium was still Putrid, we dressed it with Syrup of Red Roses, mixed with Spirit of Wine: For his thirst and pain of the Head, he took the Glister prescribed two days before.

On the 8th. The heat of the Fever somewhat abated; but because the Patient complained of a heat and pain of the Wound, about the Os Sacrum, which was now healed up, he made use of the ordinary Glister, and the Emulsion of Melon-seeds. To the Wound still Sordid, we applied the Oyntment *Ægyptiacum*; and to the Pericranium almost corrupted, the Syrup of Red Roses, mixed with Spirit of Wine, and our Decoctum Divinum. On the 9th. He said that he had slept six hours: matter tending to greenness flowed out of the Wound in small quantity; in the evening he was better, and all his heat went off.

On the 10th. In the evening, he complained of a great heat of his Back, and a violent pain of the Head: saying he could not sleep, for dreams that terrified him; and therefore he made use of his ordinary Glister, with which he voided thrice bilious matter.

On the 11th. he was better, and spent all the night quietly. On the 12th. 13th. 14. and 15th. He went on well, and the inward hollowness generated a little digested matter.

On the 16th. Also well, but by reason he abounded with Choller, he took this following Syrup.

Take of

Loosening Syrup of Roses two ounces.
Extract of Rubarb four scruples and a half.
Diacarthamum one scruple.
Magistery of Tartar, half a scruple.
Black Cherry-water as much as sufficeth.

Mix them.

On the 13th. Seeing that the lower hollowness could no ways be Consolidated, by reason of the hole above it, I advised to open it, that the matter contained in it, might get out; but seeing it had been attempted once before in vain, he was very much against it; therefore in the evening I put in a Wax candle, to the bottom of the hollownels, and left it there all night: in the morning I drew out the Candle, and put into the cavity, instead of that, a Needle,

(Tab.

(*Tab. XII. Fig. VIII.*) carrying Thread at one end, or the Armed Seton. (*Tab. VII. Fig. VII.*) and to the other end a piece of Wax; was fastned; and unknown to the Patient, I suddenly Perforated the skin at the bottom, and left the Thread in the hollownes, as in a Seton. On the 30th. He being Purged again, and the median Vein of the right Arm being opened, he was better; and the upper hole was Consolidated as far as the Thread, On the 6th. of April, being very well, he left Ulme. On the 8th. day The Thread was drawn out, and on the 10th. the Wound was Cicatrized.

OBSERVATION LIX.

Of a Wound in the Breast mortal, upon neglecting the Paracentesis.

ON the 10th. of March, 1645, At eight of the Clock in the evening, a certain young Man received a very narrow Wound in the Back, two Fingers breadth below the right Shoulder Bone, and four Fingers breadth from the Back Bone; which Penetrated into the Cavity. A Chyrurgion otherwise not unskilful, (whom the wounded Person sent for immediately upon his being hurt,) dressed this as a simple Wound; and as if it had not Penetrated: so that the blood flowed out of the Intercoastal Vessels which were wounded, into the Cavity of the Breast, and caused such a streightness, that the Parents ordered them to send for me. About twelve a Clock at night, I unbound the Wound, which by reason of the Figure of the Sword, the Posture of the Breast changed, and the applying of Astringent Medicines, was so narrow, that we could neither come into the Cavity with a Probe, nor inject Medicines to stop the blood, through the Siphon, nor apply them upon the Tent. Wherefore I declared to the Parents and the standers by, the danger the Patient was in; and proposed the Paracentesis to be made without delay, in the place assigned by *Hippocrates, Tab. XXXVII. Fig. II. 4.* which might give a Discharge to that matter, which did threaten certain Suffocation; But seeing that the Parents would not admit of this (without doubt) necessary operation in this Patient, and the matter, by giving Diureticks, could not so suddenly be evacuated by the Passages of Urine; the Patient being choaked up, dyed on the sixth day; who very probably, if the Dilacation of the Wound had not been neglected at the begining, might have been preserved: for his Lungs were not hurt, because the Patient never did spit blood, nor the Gullet,

Gullet, because he swallowed his Meat, and Drink, without difficulty : his Heart was not wounded, nor yet the Vena Cava, nor great Artery : because if so, the Patient would not have lived so long after his being wounded. The Pericardium or case to the Heart was intire ; for the Heart deprived of it's moisture, doth suddenly fail ; the Diaphragm was not concerned ; because these Symptoms did not appear, which all writers in Chyrurgery declare to accompany that Wound. But the Patient complained only of a streightness of the Breast, caused by a copious collection of Blood ; hence I would have young Chyrurgions learn, when they are called to the cure of a Wound on the Breast : to search diligently with their Probe (placing the Patient, if it can be, in the same posture as when he was hurt,) to see if the Wound hath penetrated or no ; if it hath, to pronounce it dangerous : if it be narrow, by the consent of the Patient, and the standers by, to dilate it with a Knife. *Tab. XXXVII. Fig. V. E.* That the matter collected in the Breast may flow out of it's own accord, or be brought out by putting in a pipe. *Tab. XXXVII. Fig. VI.* But if it be wide, for the reasons abovesaid to keep it open : and if the matter will neither be evacuated through the Wound, by reason of the deep situation of it ; nor be drawn out through the Pipe by reason of it's thickness : nor be driven to the Urinary passages by reason of it's great quantity : To propose the only remedy left, to wit ; the perforation of the Breast whilst the Patient hath yet strength : and this whether it be granted or refused ; that neither the Patients Friends, nor he who gave the Wound, if the Patient dye, may have any reason to blame them for negligence or ought else. ✓

OBSERVATION LX.

Of the taking off a Yard.

IN the Month of July 1635. a certain Citizen of Ulme having his Yard mortified, I cut it off near the live part with a knife, *Tab. XII. Fig. VI.* and to stop the Blood touched the Veins and Arteries with hot Irons till I had taken off all the Gangrene, and the Patient was sensible of the fire: the Operation being done, and a pipe, *Tab. XII. Fig. XVI.* Put into the passage of Urine : I applyed to the burnt place, the Egyptiacum Oyntment of *Mesue*, to make the Eschar fall off : which being taken away : I soon Consolidated the Ul-
cer

with the Ceratum divinum : and the Patient was healed. I knew a little old Man, whose Yard was cut off, for the Lues Venerea ; by the ordinary Chyrurgion of the Hospital, of *Padoa*. And by applying convenient Medicines the Ulcer was Cicatrized.

OBSERVATION LXI.

Of Incurable Cancers proceeding from the Obstruction of the passage of Bladder and Gall.

IN the Year 1622. I opened the Body of a *French* Gentleman who died of very sharp pains in the Colick : and I found a hidden Cancer in the gut called the Colon ; the cause of which, in my Judgment was the Obstruction of the passage of Gall : for that part of it where it is inserted into the Duodenum was so obstructed with a stone of the bigness of a Pea ; that not the least quantity of Gall could be discharged through it : Yet nature did not, (as for the most part she doth in such cases) throw that quantity of Gall, into the whole habit of the Body, but carried it to the Colon. On the 24. of *January* 1624. In the body of *Mrs. Katharine N.* a Venetian, who died of an Ulcerated Cancer in the Womb, I found the Bladder of Gall filled and distended with a Stone transparent like Chrystall : so that it was not fit to receive any Gall, yet Nature did send that Gall, which was daily generated to the circumference of the body, but to the Womb. From these two accounts two things may be noted. First that the Jaundise doth not always happen upon an obstruction of the passage or bladder of Gall ; but the Gall may sometimes derived to the Guts, the Womb, or some other Noble part. Secondly, the Lecture which the most excellent *Spigellus* had upon these. If a Cancer in these persons had had bred in the Breast, or Limbs, after it had been rooted out with the Knife, the Wound would scarce have been brought to heal ; or if it had been healed up the malignant matter would have invaded the principal parts, and destroyed the Patient within three or four years : The reason being evident, because the cause of the Disease could not be taken away, which was the obstinate obstruction of the Bladder of Gall. I took notice of an incurable obstruction of the spleen in a Woman who while she lived, for some years had a painful Ulcer in her foot, which as often as she healed up, she was troubled with a Quartan Ague: till the humour, seeing the

the collection of it could not be hindred; was daily evacuated by an Issue made in her Thigh, and by this means, both the Quartan Ague, and the breaking out of the Ulcer in the Legg, were remedied.

OBSERVATION LXII.

Of the left Shoulder Blade corrupted.

IN the Month of *March*, 1632. I Cured the left Scapula of the Major's Son of *Burlingsing*, which was very much corrupted, by casting in daily at the two Orifices of the hollownes, this Decoction kept open with Tents, dressed with Betony Oyntment.

Take of

The Roots of Orrice,
Round Birth-wort,
Great Comfrey, of each an ounce.
The Leaves of Speedwell,
Moufe-ear;
Burnet,
Vervain,
Peruinkle,
Strawberries, of each a handful.
Seeds of Plantain,
Succory, of each half an ounce.
Fountain-water six Pints.
White-wine two Pints.

Boyl away the third part, and add to it streined out, four ounces of Hony of Roses, mix them for an injection, till the Scapula separated so great a Scale of the Bone, that by reason of the narrowness of the Orifice, I could not draw it out; and therefore I cut open the distance between the Orifices with the Incision-Knife, *Tab. XIV. Fig. II, or III.* and took out the separated Scale with the Pincers and conglutinated the sides of the hollownes with the Shoulder-blade, by applying a new Sponge dipped in Red Wine, and pressed out; and binding on streight the Breast-plate Bandage described in the last Table, *Let. S.*

OBSERVATION LXIII.

Of a Stone taken out of the Urinary passage, without the Probe or Incision.

IN the month of *February*, 1639. A young Man of *Leipkeeme*, was received into the Hospital of *Ulme*, not being able to hold his water, from a laceration of the Neck of the Bladder, by a Stone weighing six ounces; which the famous cutter for the stone of *Augsburg*, *Angelus Merian*, drew out with the Forceps; but, because the Disease was incurable, being furnished with Medicines to mitigate the sharpness of Urine, and the galling of the parts, he went from *Ulme*. The same year, in the month of *May*, this Person was troubled with a stoppage of Urine, from a Stone that obstructed the Urinary passages; he desired my advice, and having received it by Letter, he took morning and evening, a Dose of this Julep.

Take of

Fernelius his Syrup of Marsh-mallows four ounces.

Mallows-water eight ounces.

Mix them for two Doses.

And set often in a softning Bath, till the Stone being round like a hard flint, and weighing almost three drams, being driven down by Urine to the end of the Yard, I took hold of it with the Teeth of the Pincers, and so without the Incision of the *Urethra*, (propounded by *Senertus*, *Instit. Lib. 5. Part 1. Sect. 2. c. 13.* out of *Fabrit. Hildan.* his Treatise about Cutting for the Stone in the Bladder, or the *Tab. XIV. Fig. VIII.* I drew it out.

OBSER:

OBSERVATION LXIV.

Of the pricking of a Nerve.

IN Nerves pricked, or cut, after general Purgation, some Physicians cut the skin at right angles, that the corrupt matter may come out freely, and the Medicines applied may come at the puncture of the Nerve. Others after a cross Incision, cut the Nerve also in sunder with good success, before that they apply outward remedies, whereby the afflux of humours is hindred, which encreaseth the pain, and is the cause of the inflammation, and convulsion; But because this cutting of the skin, or dissection of the wounded Nerve, Patients will seldome admit off: for the benefit of Barbers, who divers times when they open a Vein with a Lancet, do unskillfully hurt the Nerves, which are near it, or lye under it. I will set down this approved remedy.

Take of

The best Euphorbium one scruple.

Turpentine half an ounce.

Wax as much.

Mix them into an Oyntment.

Which is to be spread upon Linnen, and applied hot. With this alone presently applied, I have safely cured divers such punctures of the Nerves, as the most eminent, and my most dear Kinsman and Colleague D. *Johannes Sebastianus Blofius*, and *Nicholas Reutte* Chyrurgion will testifie.

OBSERVATION LXV.

Of a Venereal Node, cured by Chyrurgery.

Martin Fischer complained of a Venereall Node on the left Leg, which would neither yeild to a sudorifick course, nor to the
Y 3 Ce-

Cerate recommended under the Letter R. Tab. XLIII. And therefore I uncovered the Shin-bone, where it was foul with a Caustick, and shaved it away to the quick, with the scraping Irons. The operation being finished, I applied a drying Pouder to the Bone, and dry Lint, and dressed the Ulcer with common Medicines to incarnate and skin it. The Patient hapily recovering upon this operation, and these Medicines, enjoyed his health many years, and afterwards dyed of a violent death. Sometimes the virulency of this disease is such, that it corrodes the Shin-bone to the Marrow, in which case, the use of the scraping Irons is not sufficient; but besides these, Trepan, and red hot Irons, are necessary to the rooting and consuming the remainder of the foulness if it, will not be seperated, by sprinkling the Pouder of *Euphorbium* upon it. This sort of virulency, I observed at *Padoa*, in a little old Woman of fourscore years of Age; out of whose left Leg, *Fabritius* often drew out Bones, of the bigness of the fore-finger.

OBSERVATION LXVI.

Of a Meliceris in the Shoulder, and Knee.

IN the Year, 1629. *Andreas Fischer*, Coachman of *Ulme*, complained of a troublesome Meliceris on his right Shoulder; which after preparing and purging his Body, I applied the Cerate *Diasinapios*, described in the last Table, under the Letter C. The peculiar efficacy of this Cerate against Melicerides, I lately experienced in *Muldburga Heiglerin*, who by my advice, applied it to a Meliceris in the right Knee, of the bigness of a Goose Egg: which it totally discussed in a month's time, and all those humours which were gathered to the part at the beginning, by neglect of general remedies.

OBSERVATION LXVII.

Of barrenness from a Rupture ill reduced.

THE Anabaptists in *Moravia*, in curing the Rupture, after the Gut is reduced, stop up the hole of the Peritoneum with the Testicle; But this way of curing, skilful Chyrurgions do no ways commend: because, if the Testicle be less then the hole, it is easily excluded again, and if it be bigger, it is so streightned, and painful: that an inflammation, barrenness, or death, may succeed; therefore let young Chyrurgions observe in the putting up the Gut, to leave the Stone in the Scrotum, least being thrust into the hole, it should become painful, and hinder Coition. I have known some, that from this cause alone, being married, have lived a fruitless and quarrelsome Life; As also the Baker's Son, who what a Husband he will prove, time will shew. †

OBSERVATION LXVIII.

Of an Erysipelas, or St. Anthonie's fire.

I have most happily cured a great number of Erysipelas's by the use of the Linimentum Simplex, often changing it while it is fresh, and not rancid (as it is described in the 52. Observation) and not neglecting general and inward cooling remedies. In defect of this Liniment, I never found any thing better than Oyl of sweet Almonds newly drawn, washed nine times with Nightshade-water in a Glass Vessel: with which the part effected is to be anointed cold till it's violent heat be abated. Others commend Balsome of Saturn, made with Linseed Oyl to anoint the part therewith often with a Feather.

OBSERVATION LXIX.

IN the Year 1634. *Johannes Philippus* Schmid Captain of the *Switzer* *Ulme*; was wounded with a Bullet through the shoulder in the battel near *Nordlingen*: and coming to *Ulme* fell into the hands of an unskilful Chyrurgion; who kept open the orifices of the Wound, not with tents but with a seton passed through, omitting general purgation, which caused so great a pain, that a Gangreen followed upon the inflammation, to whom, coming by chance, I presently removed the Seton, and applyed a Cataplasme made of the Meal of Mallows and Rose-water, and keeping his belly open with a lenitive Glyster, for revulsion sake, I took away seven ounces of Blood from his left Arm; which was bilious and ferous; and the next day the Gangreen amending, the Patient took a potion to purge Choller. which gave him ten stools.

Take of

Solutive Syrup of Roses, two ounces.

Extract of Rubarb, one dram.

Diacarthamum, two scruples.

Magistery of Tartar, half a scruple.

Burage water as much as sufficeth to make a potion.

On the third day, the Gangreen disappeared: on the days following I separated the putrified flesh about about the Wound, with the *Ægyptiacum* Oynment of *Hildanus*: and in a months time most happily made a cure of this Wound. The wondertull efficacy of this Cataplasme, the Patient being recovered thinks he can never enough commend, and ascribeth to it the sole preservation of his Arm.

OBSER

OBSERVATION LXX.

Of a Herpes Miliaris corroding.

TH E burning Ulcers of a corroding Herpes Miliaris after the use of medicines cooling and purging Choller, often repeated, and washing the part effected with a decoction of Mallows in fair waters, I have cured in a short time with that excellent Cerate of Tobacco: the description of which I have inserted into the last Table, under the letter C. taken out of *Fabricius ab Aquapendente Penitenc. Chyrurg.* but if the Ulcers have crept in too deep, let the former Cerate be reduced into the form of an Oyntment.

Take of

The yellow Cerate, one ounce.

As much Oyl of Myrtles as sufficeth to make it into an Oyntment.

Which being spread upon Lint is to be applyed, and least it fall off to be kept on with the Cerate of Ceruss applyed over it.

OBSERVATION LXXI.

Of an Ulcerated Erysipelas.

ON the 24th. of August 1645. The worthy Dr. *Nicholas Dicterich* surnamed *Spereiter* complained of an Ulcerated Erysipelas on both Leggs with a very great itching, and flux of the sharp matter through the pores of the skin: and seeing this effect totally depended upon the boyling of the Blood, and the abundance of Choller, first giving him a laxative and cooling Glyster.

Take of

The

The Species for the Carminative Decoction, one ounce.
Violets one handfull.

Boyl them in fair water, and to nine ounces of it, streyned out, add,

Hony of Roses solutive, two ounces and a half.

Cassia newly drawn, one ounce,

Oyl of Violets, two drams.

Mix them.

I ordered six ounces of Blood to be taken from the Liver vein and to temper his heat in the Evening I prescribed this Julep.

Take of

The Decoction of Candied Succory roots, eight ounces.

Succory water as much as sufficeth.

Mix them, for two doses.

His drink was Barly water, mixed with the Tincture of Roses, and his meat cooling and refreshing, for the mitigating of the itching of the part, and hindring an afflux of humours a Chyrurgion of the Army applyed often in the night linnen thrice double pressed out of this following Decoction hot.

Take of

Mallows, one handfull.

Speedwell, half a handfull.

Crude Alume powdered, one dram.

Boyl them in a sufficient quantity of River water, and keep what is streyned out in a pot.

On the 25th. the itching and flux of sharp matter through the Skin ceased: whereupon I applied to the Ulcerated parts of the Leggs, Mynsieh'ts, Plaster of Saturn mixed with the Linimentum simplex, and spread upon a large Cloath: and the Patient to Purge serous, and bilious humours, took this following potion.

Take of

Solutive Syrup of Roses three ounces.

Extract of Rubarb

Diacarthamum, of each two scruples;

Endive water as much as sufficeth.

Mix them, make it up for a draught.

From this he had ten stools. On the 26th. by reason of great disturbance

of mind so violent an inflammation invaded his leggs, that it threatened an immediate Gangreen: for preventing which, I applyed hot my most approved Cataplasme, *Observ. 69*, And as often as it dried I commanded another to be layed on. On the 27th. The inflammation remitted, and on the 28th. it ceased, and therefore I again applyed to the Ulcers this mixture.

Take of

Mynsicht's Plaster of Saturn.

Linimentum Simplex, of each equal parts.

Till that on the 9th. of September they were Consolidated, and the Patient complained no longer of any pain or heat.

On the 12th. for preventing a relapse, I prescribed a purging Wine, after the successful use of which I burned an Issue in the right Arm, and ordered an Electuary to rub the Teeth with, for the strengthening the Roots of the Teeth, and cleansing their impurity.

Take of

Porcelan Powdered, four ounces.

Wood of Aloes.

Yellow Sanders, of each an ounce.

Musk, half a scruple.

Orice Roots, two ounces and a half.

Crude Alume two drams.

The best Hony two pintes, Mix them upon the Fire into the form of an Electuary.

OBSERVATION LXXII.

Of Oedematous Tumours.

With the noble Lime water, made use of for some days, I discussed obstinate Oedematous Tumours. Take a peice of quick Lime of the bigness of a Wallnut; put into boyling water til it be dissolved; which done, stirr them up together, and let them settle: then pour off the clear water into another Vessel: and dipp into it a new Sponge which still participates of a nitrous quality: then press it out and apply it hot to the part, but take notice that the part affected

fectd is first to be anointed with Oyl of sweet Almonds or Hogs-grease; for it may easily happen that a piece of the Lime which is very sharp and corrosive, may pass into the water transfused, and applyed together with the Sponge may Fret and Corode the part: the same praise a Sponge dipped in Water, and Vinegar deserveth; If the disease be in the beginning or Augmentation.

OBSERVATION LXXIII.

Of Vomiting Blood Mortal.

A Person of 40. Years of Age, of a hot and dry temperament complained that four Months before, being Feaverish, he had Vomited much Blood, which ceased then upon rubbing the extreme parts, and applying Remedies to cool the Liver: but that now again about twelve a Clock at night, he had first vomited up blood, and then his supper, I ordered him this powder to be taken in Plantain water.

Take of

The powder of Burnet Roots,

Of Great comfry Roots, of each two scruples.

Mix them, for one Dose.

The next day, upon the Patients Vomiting ten ounces of Blood again, I ordered Cupping Glasses, to be applyed without scarification to his back and Limbs: and this Domestick Glyster to be injected.

Take of

The Decoction of the Herb Mercury, ten ounces.

Hony, two ounces.

Lenitive Electuary, one ounce.

Mix them, for a Glyster.

The third day, he complained of a bitterness of the Mouth, and afterwards Vomited Gall in great quantity, being asked whether he ever had any Ulcers in his Leggs: he answered, that he had had Exulcerations on both his Leggs, which were cured with outward Remedies, and that an Erysipelas succeeded upon the Consolidation of these Ulcers.

cers, which also disappeared upon drinking the Decoction of *Guaiacum*. The Consolidation of these Ulcers, was without doubt the cause of his vomiting blood: for revulsion therefore of the humours, I made an Issue, in both Thighs, with the Cautery of *Placentinus*, four Fingers above the Knee: for herein, in my judgement, consisted the preservation of the life of the Patient: who otherwise would soon dye; But upon these Issues, seeing there was no Feaver hapned as it is wont, nor no inflammation, nor Erysipelas, which might signifie that the matter tended from the Center to the Circumference, and extream parts, it was a certain sign that the matter was fixed in the Body, and that the Patient was like to dye. On the 5th. day, he vomited blood again plentifully; and on the 6th. he dyed in Convulsions.

OBSERVATION LXXIV.

Of an Hernia Carnosa.

IN the month of *August*, 1634. A certain Gentleman complained of a great fleshy swelling, on the left Testicle, which after general remedies, and keeping a good dyet, I dissolved with this following Plaister, and the Pouder of the Roots of Rest-harrow, which *Petrus Matthiolus* in his Comment upon *Dioscorides*, L. 2. C. 18. commendeth unto us.

Take of

Gum Ammoniacum,

Galbanum,

Bdelium, of each half an ounce.

To this dissolved in Vinegar add,

Ducks fat melted and streined, an ounce and half.

Yellow Wax two ounces.

Oyl of white Lillies,

Marrow of an Oxes Leg, of each ten drams.

Mix them into the form of a Plaister.

Being spread upon Linnen, apply it to the Codd, and renew it every fourth day.

He took every morning a dram of the Pouder of Rest-harrow, in a draught of Wormwood Wine; and permitted an Issue to be made in the inward part of his Thigh, four Fingers above the Knee, for the derivation of the humours, and continued the use of these remedies: so that in four months time, he received his former health. In the Year, 1641. George Clacer was taken into the Hospital of Ulme, living at Reichenbach, and was hapily cured with the same remedies. Besides these many others have by degrees recovered by the help of this Pouder alone, whose names with many others, afflicted in such parts, many of them also being still alive, I willingly omit.

OBSERVATION LXXV.

Of a Fistula in the right Breast.

A Certain Country Woman being lately delivered, suffered an inflammation, and concretion of the Milk, in her right Breast; which being hardned with two many Discutients, and inconvenient Medicines applied, degenerated, first into an Abscess, and at length into a Fistula, very deep, callous, and with a narrow Orifice; wherefore, I perswaded the Ordinary Chyrurgion to the Patient, that after having purged her with general Purgers, he would sufficiently Dilate the Orifice of the Fistula, with Tents made of Gentian and then consume the Callus, with a Linnen Tent once put in covered over with this Medicine.

Take of

Mercury Præcipitate,

Burnt Alum,

Virid. Æris,

Salt Peter, of each equal parts.

Whites of Eggs a convenient quantity.

Mix and make an Oyntment.

Which doth presently extirpate the Callus of Fistula's; but not so pleasantly, nor safely, in Parts that are nervous, or endowed with exquisite sense. The Callus being consumed, I mundified the Ulcer with the Ægyptiacum Oyntment of *Mejue*; and being mundified, I incarnated it with Betony Oyntment, and Consolidated it, with the Ceratum Divinum, and dissolved the Relicks of the hard Tumour, with

with the Ceratum Oxelæum; and thus the Chyrurgion taking my counsel, the Patient recovered her so much desired health.

OBSERVATION LXXVI.

Of a Relaps into the Piles, from the use of Scammony.

A Butcher of *Ulme*, yet living, was freed from continual pains of the Hemorrhoides by the Pipe and Stile, *Tab. XVI. Fig. III. and IV.* But relapsed as often as he took in at the Mouth any purging Medicine, in which Senna, or Scammony was an ingredient. Whereupon being forbidden by my self and other eminent Physicians, the use of Sene, or Scammony, he hath lived many years free from this cruel pain of the Piles, in very good health.

OBSERVATION LXXVII.

Of the Fundament not sufficiently Perforated.

IN the Year, 1640. *Jacob Neubronner*, Citizen and Shear-man of *Ulme*, had a Son born, whose Fundament was not sufficiently Perforated, but so streight, that it would scarce admit of the end of an ordinary Pin. Being sent for, I propos'd the operation described, *Tab. XLI. Fig. VI.* which the Parents would not admit of, and therefore I attempted the necessary Dilatation of it with sharp Tents, made of the Roots of Gentian, which being besmeared with Oyl, I put up into the Orifice of the Fundament, and left it there: that being swelled, it might sufficiently Dilate the Part. This manner of proceeding with the Gentian Roots may be seen before in the 40th. Observation, and the manner of binding it, that the Tents fall not out, *Tab. XLI. Fig. VII.* I knew a Midwife at *Pados*: who Perforated the Anus totally stopped up with a common Needle, and enlarged the hole mad by putting in tents of Gentian.

OBSERVATION LXXVIII.

Of the bringing forth of a dead Child.

When the dead Child cannot be brought out by inward remedies, of which there is mention made, *Tab. XLI. Fig. V.* a suffumigation taken into the lower parts often in a day, made of putrid Grapes is much commended. The efficacy of which, I admired at *Ulme*, in the Person of a Noble Matron yet living, who at that time would rather have dyed, than admitted of that safe relief from the Chyrurgions hands, or from the Hook, or other Instruments, (which to speak the truth, I never saw used to the living) but dead Children, from the retention of which those in Labour dye; I have drawn intirely out of three Bodies, with Hooks Delineated, *Tab. XVII. Fig. IV.* And without the least Laceration of the Womb, or Vagina, and I observed in them, that their opinion is true, who write that the Bones of the Os Pubis, in a hard labour are separated one from nother.

OBSERVATION LXXIX.

Of a virulent Gonorrhea.

A Certain *German* Noble Man, of about twenty years of Age; of a hot and dry Temperament, three days after impure Coition, began to complain of a virulent Gonorrhea; for the Cure of which, I purged him divers times with this Bolus.

Take of

Venice Turpentine washed in Mallow-water, four scruples.

Cassia newly drawn six drams.

Mercurius Dulcis fourteen grains.

Mix them, and with Sugar make them into a Bolus.

Then

Then for ordinary Drink, I prescribed this appropriated Decoction;

Take of

Whole Barly one Pugil.

Melon-seeds, both bruised, one ounce.

Leaves of Horse-tail half a handful.

Fountain water eight pints.

Boyl them to the Consumption of half, and in the end add a dram of Liqueurice thinly sliced.

For mitigating the heat of the Reins, I ordered this following cooling Oyntment.

Take of

The Cefate of *Sanders*;

Oyntment of Roses,

Comitilix, of each six drams.

Oyl of Water Lillies,

Oyl of Violets, of each half an ounce.

Camphire poudered half a scruple.

Mix them for an Oyntment.

And every morning three hours before Dinner, I gave him the mixture which *Johannes Petrus Faber* commendeth, made of an ounce of Juice of Lemmons, and a scruple of Spirit of Campher: with which remedies the Patient was recovered in six days time, without injections, (which some use with wonderful success, made of the Juice of Plantain, Hony of Roses, Mercury dulcified, and Aloe of *Zoc-cotora*; with *Quercetan's*-water, for the Gonorrhœa, given divers days after Mercurial Purgers, I have cured many.

OBRERVATION LXXX.

Of the Corrosion of the Stomach healed.

IN the Year 1622. I opened the Body of a Monk at *Padua*, who was reported to have died of pains of the Colick: and searching after the cause of his death, I found that he had a burning inflammation in the bottom of the Stomach; which had corroded to the Middle Coat.

Z

In

In curing the like inflammations, and corrosions of the Stomach:
 ✱ The most excellent *Spigelius* saith there is nothing better than Terra Sigillata taken in at the Mouth, the slimyness of which sticketh fast to the corroded Coat of the Stomach (no otherwise then as the Cerate of Diacalcitis applyed to an inflamed Foot.) And drieth up the Corrosions. The value of this Remedy I afterwards experienced to my great admiration in violent Pains of the Stomach, which could not be mitigated by any Remedies, inwardly or outwardly applyed: but with this Terra Sigillata mixed with the Syrup of great Comfrey. †

OBSERVATION LXXXI.

Of a Shin bone corrupted.

ON the 8th. of June, 1633. *Ds. Agustin Wörz* a Merchant of *Ulme*, complains of a large Ulceration and great pain of his right Leg, his body being extenuated, looking upon the Ulcer, we found not only the Shin-bone corrupted from the superficies to the middle of it, but also the lower head of the fibula injured. Consulting therefore with the most famous and eminent *Dr. Gregory Horstius*, and *Dr. John Regulus Villenger*, we thought it fit that the Shin-bone should be taken out; but seeing that the Body wanted Blood by reason of its extenuation, we doubted how we could bring it to Cicatrize again: and if we should upon the Patients desire, remove the corrupted part, by scraping or burning, yet we might attempt this in vain, if the nourishment were deficient which the bones receive from the Marrow, and Blood; † for a bone scraped or burnt, without nourishment, can neither be covered with flesh, nor throw off Scales; and therefore we unanimously consented, that at that time, we could not conveniently cut out the corrupted bone: his Body being first prepared, upon the 6th. of July, his Leg being placed streight on and held by the standers by, on each side, I cut the skin with an Incision Knife. *Tab. II: Fig. II.* Almost to the lower appendix, of the Shin-bone. *Tab. XXVII. Fig. I.* and shewed to my Colleagues and the standers by, how the Shin-bone was very much corrupted, and half the Head of the Fibula putrified: Upon the Shin-bone there grew a Cartilage in such manner that the bone under it might be drawn up and down as a Sword in a Scabbard. (*Tab. XXVII. Fig. II. letter A.*) and therefore I bound up the Wound with Lint,
 The

The Astringent Pouder of *Galen*, and the white of an Egg stirred up. On the 7th. of *July*, the Blood being stopped. I unbound the Wound, and shewed the corrupted Tibia in its cartilagineous sheath. (Which I perforated with Trepan. *Tab. II. Fig. III. & IV.* Down to the corrupted Shin-bone. *Tab. XXVII. Fig. I. letter B.* And afterwards cut out the space between the Holes with the Pincers. *Tab. IV. Fig. II. & Tab. XX. Fig. I.* This being done, I took out the corrupted Tibia, *Tab. XXVII. Fig. II.* and saw the corroded Head of the Fibula, *Tab. XXVII. Fig. III.* which I also cut off with the Trepan, and took away down to the lower Head. This done, I sprinkled on the Pouder of long Birth-wort, Orice, and Chrysolite; and then applied Lint, the Cerate of Diapalma, and Linnen pressed out in Red Wine, and Oyl of Roses, I bound up the Leg with the divided Bandage, *Tab. XXVII. Fig. I. Crosswise, Tab. XXVIII. Fig. X.* and put it into its Case, *Tab. XXVI. Fig. III.* The third day after the cutting it, the pain somewhat remitted, and the Patient being bound in his Body, made use of this following cooling and moistening Glister.

Take of

The Decoction of Sorrel,
Mercury,
Pellitory of the wall,
Borrage, and
Sow-thistle, of each eight ounces.
Solutive Hony of Roses, three ounces and a half.
Oyl of Violets two ounces.

Mix them for a Glister.

His Dyet was slender and cooling, of Barly Ptisan, Bread and Water, Pruans, Barly-water, and Pomgranate Wine. On the 4th day, I washed the Wound with the Decoction Divinum, by reason of the remaining putrification of the flesh, and applied Lint dipped in this Digestive.

Take of

Turpentine washed in Plantain and Scordium water, half
an ounce.
Pouder of Orice,
Long Birth-wort,
Scordium of each one dram.
Frankincense,
Aloes, of each one scruple.
Syrup of Red Roses as much as sufficeth.

Z. 2

Mix

Mix them into the form of a Digestive.
And over that the Cerate of Diapalma, and the Bandage wound up crosswise.

On the 5th. day, I prescribed these purging ingredients.

Take of

Mastick Wood,
Roots of Sorrel, of each three drams.
Sassa six drams.
Leaves of Senna an ounce and half.
Roots of black Mechoacan half an ounce.
Turbit,.
Hermoadils of each two drams.
Carthamum-seeds beaten six drams.
Annis-seeds,
Fennel seeds, of each a scruple.
Crem of Tartar half an ounce.
Ginger and Galanga, of each half a dram.

Being cut and bruised, infuse all these put into a Bag in a measure of Barly-water, and make a Claret.

Of this infusion the Patient took four ounces, every other day, three hours before Dinner. On the 6th. after a draught of this the Patient was better, and the Leg being unbound, the matter tended to whiteness, and the ill smell of the Bone remitted; and therefore I bound up the Wound, or rather the Ulcer every day with the same Medicines, till the 12th.

His Body being purged from bad humours on the 13th. I prescribed this following Decoction.

Take of

Roots of Sassa an ounce and half.
China an ounce.
Red Sanders half an ounce.
The Bark of Guaicum a dram.

Infuse them into a convenient quantity of Fountain-water, and boyl away the third part, in the end of the Decoction add an ounce of Raisins, and strein it out.

Of this Decoction he took morning and evening four ounces, four hours before Meat: at Dinner and Supper he Drank of the second De-

Decoction. The Wound went on well, and we put a Wax Candle of the bigness of a Finger, into the Cavity of the Tibia, and Head of the Fibula: red flesh began to grow at the extremities of the Shin-bone, both below and above; and laudable Quitter came out of the Wound. On the 15th. 16th. and 17th. The Patient went on well, and I drew out with my Pincers, a black piece of Bone, half putrified about the upper end of the Cavity. On the 20th. he took a Glisten, to keep his Body soluble, the Wound sent forth digested matter, and to the excrements of the Tibia, for the greater drying of them. I applied Pouder of long Birth-wort, Orice, Scordium, Frankincense, and white Sugar, of each equal parts. Red flesh grew to the Head of the Fibula, and the lips of the Ulcer: for the greater drying of which, I applied the Ceratum Divinum. Upon the use of the Decoction prescribed, the Patient went on well, and the leanneis of his Body was somewhat amended; yet every other day from the 24th. to the 30th. he made use of the Laxative Claret, and the Decoction of China.

On the 31st. I drew out some pieces of the Bone, with the Teeth of the Pincers, from the inward Head of the Tibia: for the excrecence of flesh of the Wound, I applied the Ceratum Divinum, and bound up the whole Leg with the divided Bandage, and put it into its case. The Wound was dressed with these Medicines, till the one and fourtieth day. From the 42^d. to the 50th. The Patient was in good health, and moved his Instep, and the Bones of his Foot up and down: for the Muscles which bend the Foot, as the Tibius before, and the second Peroneus, and those which extend it; as the inward Gastrocnemius remained unhurt in the operation; and least any one should wonder at it and, think this impossible to be done without a Prop; it is to be understood, that the Callus which was generated by this time, and the Fibula, did sustain this motion. On the 60th. He passed the night unquietly, and complained of a bitterness in his mouth: upon which he took this following Pouder in Broth, in which Succory was boiled.

Take of

The best Rubarb powdered, three scrupls and a half,

Cinamon half a scruple.

Crem of Tartar one scruple.

Mix them.

From this he voided five times bilious matter, the Wound being unbound, the Patient was indifferently well, only a little Bone which Nature had separated pricked the Skin; and that bone being drawn out he was very well. On the 70th. Nature expelled a very little Bone out of the hole of the Fibula; and filled up the hole with very

good flesh. On the top and bottom of the Tibia red flesh bred, and the sides began to cicatrize.

On the 80th. The whole Wound was cicatrized the length of the Fore-finger, and he could move the whole Foot, and the Toes without any hindrance.

On the 81st. This following Oyntment was applied.

Take of,

Oyl of Earth-worms,

Oyl of Camomile, of each half an ounce.

Nerve Oyntment, and Oyntment of Eva, of each an ounce.

Mix them.

On the 84th. We gave order for an Instrument to be made out of a Plate of Iron, which on the upper part, was like to a Spatula, on the lower to a Stirrup, and was covered over with Cotton, and Linnen, and put on to the Leg; and the Patient leaning upon Crutches, began to walk. On the 94th. Laying aside his Crutch, staying himself with his left hand, he went out of doors without inconvenience: the Wound being still open a Thumbs breadth, and not yet cicatrized: by reason of an Erisipelas, to which he was subject; he took every month Pouder of Rubarb in Broth, in which Succory was boyled.

Take of-

The best Rubarb poudered one dram.

Jalap one scruple.

Crem of Tartar half a scruple.

Mix them.

On the 120 day he was well; but upon weariness his Leg was troubled with an Erisipelas; and taking the Pouder of Rubarb prescribed, and applying the Linimentum Simplex, the fourth day it went off, and the Patient walked again without a Staff; and so continued well, till the 200. When going into the Market to buy Fish, stepping I know not how, he broke the Callus of the Tibia, Looking upon the Fracture I dilated the Wound which was still open, with the Incision-Knife, without any pain, and found two Fissures, between which there was a piece of a Fingers breadth, *Tab. XXVII. Fig. V.* broken so as I could move it up and down with a Probe. Things standing thus, and there being no pain, or inflammation; I perforated the broken Piece with the Trepan, and cut the space between it with the Instrument, *Tab. XX. Fig. I.* and took it out piece by piece, and then scraped both parts of the Tibia, both above and below, with the scraping Irons, and applied Pouder of Birth-wort, and Orice, to the Callus parts; I bound

bound up the Wound with the Cerate of *Diacalcitis*, and the divided Bandage, and placed the Leg in its case: so that keeping a very strickt Dyet; and using the Pouder of Rubarb, the Callus grew again, and he was restored again to his former health; and in the Year, 1645. when I wrote these, could walk without a Staff.

OBSERVATION LXXXII.

Of fleshy Excreescences.

Fleshy Excreescences on the Fingers and Toes are soon consumed with this Pouder applied with Lint.

Take of

The Caput Mortuum of Vitriol,
Burnt Sponge, of each a dram.

Mix them into a Pouder.

And being taken away they may be cicatrized with the Ceratum Divinum. A young Man of eighteen years of Age, complained of a great Excreescence on the upper Gum, which after purgation, I cut off, by putting a Thread about it, tyed and drawn close together by degrees. The flesh being taken away the Patient rubbed his Teeth every morning for eight days with this Magistral Pouder, to an ounce of which, there was added a dram of Crude Alum.

Take of

Porcelan Earth four ounces.
Aloe Wood,
Yellow Sanders, of each an ounce.
Musk a scruple.
Orice an ounce.

Mix them for a Pouder for the Teeth.

And washed his Mouth with the following Decoction.

Take of

Roche Alum two drams.
Pomgranate Flowers,
Red Roses,
Myrtill, of each half a Pugil.
Bugle one Pugil.

Boyl them in a convenient quantity of rough red Wine, to a pint and half, and straine it out, to wash the Mouth.

OBSERVATION LXXXIII.

Of Kibes and Chilblains ulcerated.

I Have seen a great number of Kibes and Chilblains healed, and I my self have cured very many, with this following Liniment, which *Johannes Preevotius* doth deservedly commend in his Medicines for poor People.

Take of

The Leaves of Tobaccò,
The middle Bark of Elder, of each a handful.
Roots of white Asphodel thinly sliced one ounce.
Common Oil one pint.

Boyl away the moisture upon a gentle Fire, and press them out strongly, to which add,

Frankincense finely powdered half an ounce,
Yellow Wax six drams.

Mix them into a Liniment.

Which presently healeth ulcerated Kibes, or Chilblains, on the Nostrils, Ears, Hands, or Feet.

OBSERVATION LXXXIV.

Of a Scatoma on both hands.

IN the Year, 1628. *Johannes* my Brother *Martin's* Son, had a little swelling, near his Fore-finger on the outward part of his left Hand, at first rising appearing like a Ganglion; but I bound a Plate of Lead over it, without any benefit. In the Year, 1629. The Youth sweat in a publick Bath at *Christmas*-time; and coming home

home was taken with a great inflammation all over his Hand; which being put into a warm Lambskin (which otherwise powerfully discusseth) came to suppuration, and required the operation with the Knife, *Tab. XII. Fig. IV.* The Abscess being duly opened, and a purulent and tallowy matter coming out, I incarnated the Wound, and healed it up. In *Autumne* the same Year, another Tumour appeared about the same place, but nearer to the Wrist: which also degenerated into an Abscess to be cured by the Knife; which being cut, there came out in like manner Quitter mixed with Tallow, and the Wound was soon cured again, with Sarcotick, and Epulotick, Medicines. In 1630. About the Vernal Æquinox, there arose tallowy Tumours on the back of both Hands, which were insensibly dissolved, without applying any thing to the part, upon the taking of a Sudorifick Decoction, whose chief ingredient was Sarsa. In the Year, 1631. Swellings arose on the Wrists, and on both sides of the back of the Hands, to the bigness of a Walnut, causing inflammation, and an Abscess; which, being opened with the Knife, cast out the same matter as the former. In the Year, 1632. These Tumours invaded both Arms, and therefore I advised a Cure by sweating; which the Patient being difficult to sweat, was totally against. Being suppurated, therefore I opened them with the Knife, and the matter coming away by degrees, I kept the Wounds open with Tents, for two months; in the mean time, washing the Hands every day, an hour, in the Water of the Stribiline well near *Ulme*; heated and bound them up with Spunges dipped in the same Water, till the reliques being discussed, the parts recovered their former strength, by the help of this Water, the Youth out of whose Hands I had taken divers pieces of corrupt Bones, and opened four and twenty Abscesses, was preserved from any further Relaps, and performs all Offices with his Hands, without the least impediment; taking every three months a Pouder to purge Phlegm.

OBSERVATION LXXXV.

Of a Fracture of the Thigh-bone, with a Wound.

ON the 22^{d.} of October, 1642. A sack of Corn fell from the top of a high-house, belonging to the Worshipfull Dr. Erhard Schadauw, at *Ulme*, and broke the Thigh-bone, of Katharine Beckhin of

of *Giengin* as she passed by, just in the middle, so that the lower part of the Bone broke through the skin; and the patient, with the great pain of her Thigh, and Back, fell into a Swoond, and being brought into the Hospital her Spirits were recovered by inward and outward medicines.

Take of

Black-cherry water, three ounces,
Rose water,
Burrage water, of each an ounce.
Cinamon water, two drams.
The Anhalt Cephalick Spirit, one dram.
Magistery of Corral half a dram.
Pearl Tablets, half one ounce.

Mix them

Put them into a glass, and call it the strengthening water.

Take of

The sweet sinelling water of *Fuchsius*, one ounce.
Rose water, half an ounce.
Rue Vinegar, two ounces.

Mix them, for a water, to be applid to the nostrills and pulse.

And Extension of the thigh being made. *Tab. XXIX. Fig. I.* I set the broken parts without the help of the scraping Iron.

The Fracture being composed I applied to the broken bone, powder of the Roots of Orrice and round Birthwood: I put a tent into the Wound made of hemp hards and an astringent Oyntment, which I made of the astringent Powder of *Galen*, and the white of an Egg stirred up. I bound up the Thigh outwardly with three rollers and a sufficient number of Plagets. see *Tab. XXIX.* And thus guarded I put it into its case. *Tab. XXVII.* The member being thus well composed, by reason of the great pain of the whole leg and back, and the eminent danger of an inflammation, the Chyrurgion ro the Hospital opened the Median vein of the left Arm, and took away four ounces of Blood. On the 2d. and 3d. day, she complained of a pain of the Back, and heat of Urine. On the 4th. and 5th. the Patient answered to what was asked, without complaining, but because her body was bound, the ordinary Phisitian to the Hospital prescribed her some Bolus's to be made, out of an ounce of Lenitive Electuary, and while they were making up her courses began to flow. On the 6th. 7th. and 8th. she did not complain of any pain about the Fracture, only of a little Cough, and a great itching about the private parts; and therefore she took often in a day Syrup of Violets, of Liquorice and

and Tincture of Roses mixed together: to the Back and private parts, for their itching, I applied after a Fomentation with fair water, white Oyntment and the Linimentum Simplex. On the 10th. day, I unbound the Wound, and bound it up again, with the Cerate of Diapalma perforated, and three rowlers passed through it: and a sufficient number of Bolsters and Splents; The bolsters Being first pressed out in red-Wine, and by this means, upon occasion, I could look upon the part every day, without taking off the rowlers; her lower Belly was very much swelled, and very hard from the Navel downward, to which I applyed, three days together, a Cataplasme made of the Powder of Mallows, crums of Bread, Milk, and fresh Butter. On the 14th. the swelling and hardness decreased, and remitted. The Patient upon an Abscess coming to suppuration in her Buttock, complained of a Strangury and very sharp pain about the Os Sacrum. On the 20th. the Abscess being broken and the Ulcer cleansed, the Strangury and pain went away, but because the Ulcer on the Buttock did require daily applications, the broken part could not be kept in rest till the 30th. day, at which time the Patient complained of nothing. On the 40th. a new Abscess arose under the Ham, which coming to suppurate, was very painfull, and upon breaking cast out a very stinking matter, and therefore I injected, through a siphon, a Decoction of the Roots of Orice, round Birthwort, Scordium, Speedwell, Carduus, and Hony of Roses; upon which the Violent pain and stinking ceased. I dressed the Fracture again with Medicines convenient for the Bone and Wound, with the Cerate of Diapalma, with rowlers with holes through them, and long bolsters, and splents. On the 60. she complained of so great a pain about the Wound that she could scarce speak without sheeding of tears; and said that for divers Nights she had seen a Spirit which was falsely reported, to walk in that Cloister, and that it caused her whole Body and the Bed to shake, and was the cause of her pain, but I suppose, that the pain took its Original partly from the Ulcer on the Buttock, which was cleansed every day and so moved, discomposed and troubled the broken part: and partly from a Portion of the Bone, which in such cases, used to Skale off about this time. On the 18. of *January 1643*. she complained of terrible pains about the Wound on the Thigh, and unbinding it, and looking upon the Wound, I found out with my Probe a sharp peice of Bone, which continually pricked the flesh, and excited these great pains; therefore I presently dilated the Wound sufficiently with my incision Knife. And on the 19th. I took hold of that part of the bone which was separated with the teeth of my pincers and drew it out. *Tab. XXVIII. Fig. IX.* On the 20th. day, the whole Thigh was less than the days before, and the pricking pain intermitted. After the taking away of the Bone, I bound up the thigh with the
cross

60.
20th

Cross bandage. *Tab. XXVII. Fig. X.* Untill the Wound was perfectly healed. In the Month of *February*, The Ulcer being not being yet consolidated, the Patient by help of an Assistant, began to walk, a little halting. On the 18th of *March* 1645. A part of the Bone as big as the Ring-Finger came a way. On the 3th. the Ulcer was Cicatrized.

OBSERVATION LXXXVI.

Of a Spina Ventosa.

THE most excellent *Spigellius* cut off the Thumb of the left hand, a certain Monk of *Bolonia*, it being corrupted with a *Spina Ventosa*, with the Pincers described. *Tab. XX. Fig. I.* And applied to the Mutilated part to stop the blood, and hinder an inflammation, Plegets dipped in an Astringent, and a Bladder dipped in Water and Vinegar, and bound the Arm up with Rowlers, as high as the Elbow. The blood being stopped, he cleansed the Ulcer, and healed it.

OBSERVATION LXXXVII.

Of a broken Leg with a Wound.

AT seven of the Clock on the 5th of *December*, 1643. In the evening, *Matthew Ritter Junior*, fell out of a Gallery, and broke his left Leg, four Fingers breadth, above the lower end; with a Wound laying the Bone bare, and a prominence forward. The Leg being set by extension only; the pain which was very violent before, did presently abate. I bound it up with three Rowlers, *Tab. XXIX. E. F. C.* And with Boulsters the same *Table H.* and placed it duly in its Case, *Tab. XXVI. Fig. II.* In binding it up, the Patient being faint, took oftentimes a spoonful of this Cordial Water.

Take

Take of

Black Cherry-water two ounces.
Burnet-water,
Rose-water, of each an ounce.
Cinamon-water a dram.
The Anhalt Cephalick Spirit, half-a dram.
Magistery of red Corral powdered half a dram.
Prepared Pearl one scruple.
Prepared Chrysolite half a scruple.
Pearl Tablets three drams.

Mix them and put them into a Glass.

On the 6th. of December, the pain of the Fracture, upon the use of remedies, went quite off; and the Patient went on well to the fourth day of his lying down. On the 9th. The Wound being unbound and inspected there was no sign of any inflammation, or pain; and therefore I applied to the Bone of the Tibia, dry Lint, and to the lips of the Wound, a Digestive.

Take of

Turpentine washed in Plantain-water, half an ounce.
Pouder of the Roots of long Birth-wort,
Orice, of each two scruples.
Syrup of Red Roses two drams; and
As much yolk of Egg, as sufficeth.

Mix them.

And over it the Cerate of Diapalma, and Rowlers, and Splents.

On the 10th. day, the Patient made use of a Laxative Glister, and went on well, till the seventh day of his lying down.

On the 13th. The Wound being unbound, there appeared good digested matter, without pain, or inflammation; which otherwise are wont to accompany these Fractures, and therefore I continued to dress it with the same Medicines; Cerate, Bolsters, Plagets, Splents, because the time of fearing an inflammation was past; and placed it in its Case, *Tab. XXIX. Fig. VI.* On the 16th. The Wound being again unbound and looked upon, all things went on well, not any pain or Tumour appeared; and laudable matter, and in a small quantity, came out of the Wound; and therefore I sprinkled upon the Bone which had lost its membrane, a Pouder of the Roots of long Birth-wort and Orice, I applied to the Wound a Sarcotick, and bound up the Leg again with the Diapalm, the Rowlers, Bolsters, and Splents. This day he played at Cards, and moved the Case up and down, and distorted the the whole Shin-bone to the left

lett. On the 17th. In the morning, he complained of the Case pressing upon the outward part, under his Knée, below the Head of the Fibula; and looking upon the Leg, I found an Extuberance, and therefore unbinding the Wound, I touched it, and perceived a Fracture of the Fibula, which without doubt Nature would have Consolidated, if he had kept his Leg always unmoved.

On the 20th. I applied an Iron Plate, that it might somewhat drive in the Extuberance of the Fibula towards the Tibia, which it did, but I foretold that a piece of the Bone would come away. I put upon the Fractured Tibia which went on well; the Pouder of Orice, with dry Lint, and put the whole Leg into its Case, being bound up with the Cerate of Diapalm, the Rowlers, Boulsters, Splents. On the 25th. The Patient complained of the Fracture of the Fibula; which being looked upon, I found a Bone which did somewhat prick the Skin, and therefore I drew the Cerate, Bandage, and Boulster, somewhat to the right, to provide against the pain, caused by the pricking of the Bone. On the 6th. of *January*, 1644. The Fractured Tibia began to be confirmed, and the little Bone of the Fibula came in sight; to which I applied the Pouder of Orice, and long Birth-wort with Lint; and bound up the Leg, with the Cerate of Diachalcitis, the Boulsters, Iron Plate, and Rowlers: that the Leg might acquire its former streightness. On the 16th. of *January*, I applied to the Wound of the Tibia, Lint, Diapalma, the Rowlers, Boulsters, and Splents. The Fracture of the Fibula sent forth white digested matter, I took out a little sharp Bone with the Pincers, and bound up the Leg, as the days before. On the 5th. of *February*, Nature had separated a little Bone of the Fibula; and the flesh began to grow: therefore I bound up the Ulcer slackly, with Lint, The Ceratum Divinum, and the Rowlers, and put the Part affected into the Case. On the 25th. For an excrescence of flesh, I sprinkled Pouder of burnt Alum upon the Ulcer; which being consumed: *March* the 4th. I drew out another piece of Bone, and dressed the Ulcer with dry Linnen, and the Cerate Divinum; and placed the whole part, bound up as the days before. On the 24th. Upon irregular Dyet, the matter was green, and the Ulcer spread it self; and therefore I ordered this Laxative Wine.

Take of

The Roots of Grass,
Of Orice, of each a dram and half.
The Leaves of Betony,
Speedwel,
The lesser Centaury,

Bor-

Borage,
 Worm-wood, of each half a Pugil.
 Senna one ounce.
 The best Rubarb three drams.
 Trochies of Agarick two drams.
 Hermodactils,
 Turbith, of each a dram and half.
 Carthamum-seeds beaten two drams and a half.
 Anis-seeds,
 Fennel-seeds of each half a dram.
 Crem of Tartar three drams.
 Ginger,
 Galanga, of each a scruple.

Being cut and bruised put them into a bag, to be infused in a measure of Wine, the Patient took of this infusion every other day, two hours before dinner, three ounces and a half. Upon the use of this Wine. The Patient grew better, the Ulcer generated digested matter, white, and not in the least stinking. On the 14th. of *April*, the Patient was very well and the Wound coming to Cicatrize, he began to walk by the help of Crutches. On the 4th. of *May*, the Patient very joyfully laid aside his Crutches, and walked without halting.

OBSERVATION LXXXVIII.

Of an Atheroam on the outside of the Legg, cured.

MArgaret a Noble Virgin whose surname for honour sake I omit of about thirty Years of Age, of a hot and dry temperaments complained eleven Years of a hard tumour without pain, bigger than a Hens Egg; on the outside of the right Thigh between the Muscle called the Glutæus and the skin; and this Tumour being contained in a Coat; it would not yield either to outward or inward remedies; giving my Prognostick therefore that this Tumour could not be cured without manual operation, I first prepared and purged her Body. And on the 26th. of *May*, 1641, I took out the tumour after this manner. First I made a cross upon the skin with Ink, and the Ink being dried I cut the skin upon the marke into four right Angles. *Tab.*

II. *Fig. I.* Till the bag come in sight. The skin being cut cross-wise, and the Blood wiped away with a Sponge. I separated the four corners of the skin with my Probe from the Coat of the tumour under them, to the basis, where there was a vein which I cut in pieces; and drew out the whole tumour in its coat with the Pincers: the bag being taken away without any hurt: I presently brought the lips of the Wound to touch one another, and applied the white of an Egg stirred up, with the astringent Powder of *Galen*, the wound being bound up, I dissected the bag, and found a matter contained in it, like to Pap. On the 28th. of *July*, the Wound was Cicatrized, and the Patient restored to her former health.

OBSERVATION LXXXIX.

Of a Wound on the Wrist hurting the Artery.

IN the Month of *December*, 1631. *John Moser* a Taylor, of about twenty four years of Age, of a hot and moist Temperament, was Wounded with a Knife, by his Man, upon the Wrist and Radius of the left Arm: so that not only the Vein, but the Artery also was cut cross. Upon which, a Flux of blood followed, and other cruel Symptoms. This Wound *Nicholas Reutte* a Chyrurgion did presently bind up, according to Art. The second day, it bled so copiously, that for want of Vital Spirits, his whole Body was shaken with convulsive motions. Towards night, he took a Lenitive Glisten, which gave him three Stools. On the 3^d. day, the Liver Vein of the right Arm was opened, and four ounces of blood taken away. On the 4th. when the Wound was dressed, no blood came out. On the 5th. For a bitterness of his mouth, the Patient used this following purging Syrup.

Take of

Soluteive Syrup of Roses two ounces and a half.

Extract of Rubarb one dram.

Diacarthamum a dram and half.

Crem of Tartar half a dram.

Succory-water as much as will make them into a Liquid Syrup.

This gave him two Stools. On the 6th. day, he complained of
pain

pain at his Stomach, and Giddiness; and therefore took Syrup of the Juice of Citrons, mixed with Pomgranate Wine, Burnet-water, and black Cherry-water; in faintness he found relief from the use of Pomgranate Wine. On the 7th. He was unquiet all night; and said, he had been fighting with the young Man, who Wounded him; and then complained of the charges, and was so melancholy for them, and disturbed: that he ran up and down about the Chamber. Upon which the blood boiling sprang out of the wounded Artery, so violently, that it could by no means be stopped; And therefore, compressing the Arteries with my Fingers, I took out a great quantity of concremented blood out of the Wound, about the middle part of the Radius. At length, I applied to the wounded Artery, a burnt Sponge, and Pouder of prepared Chrysolite, and the Astringent Pouder of Galen, with the white of an Egg; and bound it up with a convenient Bandage, and put into it, the Instrument made of a Plate of Mettal, *Tab. XLIII. Letter B.* Which is to be Locked, and compresseth the Artery with a Scrue, without any danger, or inconvenience. On the 8th. & 9th. days, his Arm to the middle part of the Cubius, and Radius, was inflamed; and in the evening took a Glister. On the 10th. day he was better, and yellow matter issued through the Rowlers. On the 11th. he slept well all the night. On the 12th. the Wound being unbound, white matter flowed out; and the Wound appeared larger, by reason of the concremented blood taken out, as in an Aneurism, and the putting in of the Sponge. The Tendons of the Muscles, called Perforantes, came in sight, inflamed, painful, and tending to putrefaction. The Wound therefore being cleansed, without taking out of the Sponge, I applied the former remedies to the Artery; and the Wound being bound up with the Bandage, I shut it up with the Pin of the Instrument. In the mean time, cooling, and moistening Syrups were not omitted: Emulsion. of Waters, and appropriated Seeds; Magistery of red Corral, and Syrup of Violets.

On the 13th. and 14th. The Patient was somewhat better: for the inflammation, and pain, of the wounded Arm, somewhat abated. On the 15th. day, White matter came out of the Wound, the pain of his Hand seemed more remiss, and the swelling was less, the Tendons recovered their natural heat. On the 16th. I pulled out half the Sponge, which stuck to the Orifice of the wounded Artery, with my Pincers; and left the other half still in the hole. On the 17th. I drew out the rest of the Sponge, and applied to the Wound the former Medicines; and the yellow Cerate covered over with the Linimentum Simplex; to the Wrist bound up conveniently, I put on also the Instrument. On the 18th. I found the Orifice of the Artery conglutinated, and the Tendons covered with

solid flesh. On the 24th. The Wound being consolidated with the Ceratum Divinum, the Patient was restored to his former health.

OBSERVATION XC.

Of a Concussion of the Brain.

IN the Month of November, 1627. *John Semlin*, of *Oppingen*, near *Ulme*. A Country-man's Servant, of a hot and moist Temperament, a month before, was in *Mark Feyels* House; in which the Maids and young Wenches were Spinning, and doing their Tasks. This *John* at that time, was playing with some of the young Maids, and the rest called to him to leave his tricks. In conclusion they set him upon his Head, with his heels upward; and then turned him over suddenly again, and then shook the Ground with his Head again; which they did so often to him: that the blood came out of his Nose and Ears; and he fell down upon the Ground, as dead. The young Wenches seeing him in this doubtful condition, sprinkled Water upon his Face, to recall his Spirits; which being done, he stood up, as if he had risen from the dead, and went away with a great pain of his Head and Arm. The 2d. day, notwithstanding this pain of his Head and Arm, he Fanned Corn. The 3d. & 4th. He was worse; so that, by reason of a Fever, and Convulsive motions he was forced to keep his Bed. On the 6th. day, He went in a Cart to *Oppingen*. On the 7th. His Mother sent for Chyrurgions. On the 11th. 12th. 13th. & 14th. He was troubled with his Convulsive motions. On the 15th. His Mother sent his water to the eminent Dr. *Kaleb Sattelius*, an industrious Physitian of *Geslingen*: who prescribed the Powder against inward bruises, to dissolve the grumous blood, with Syrup of Wood Sorrel, Juice of Citrons, and Burnet Water. Afterward, he was dumb, and deaf; and was under a Coma, till the 24th day. Of which loss of speech, *Hippocrates* in the 58th. Aphorism of the 7th. Section, doth thus foretell. *Whosoever have their Brains, upon any occasion, violently shaken, they will necessarily become dumb.* A loessness followed his loss of speech, and hearing, which lasted three days; at which time, he could hear others speak, and spake himself, and complained of a great pain of the left Arm, about the Deltoides Muscle. On the 29th. By order from

from the Republick of *Ulme*, I went to *Oppingen*, where I found *John* very much complaining of a great pain of the Head; about the Coronal, and Sagital Suture, thirst, a great Feaver, heat, and blackness of his Tongue, a Palsy, Odematous, and Schirrous Tumour, all over his Arm, which much afflicted the Patient; and about the Deltois Muscle tended to suppuration, whereupon I presently for revulsion sake, prescribed this Glyster.

Take of

The common Decoction for Glysters, nine ounces.

Hony of Roses solutive, two ounces and a half.

Diacatholicon, one ounce.

Oyl of Cammomile, two ounces.

Mix them, for a Glyster.

With this the Patient voided five times bilious and serous excrement.

To the top of his Head being swelled, I applied this strengthening and digesting Cataplasim.

Take of

The crums of Houshold-Bread, three ounces.

Wheat meal.

Barly meal, of each two ounces.

Flowers of Betony powdered.

Roses powdered, of each half an ounce.

Oyl of Roses, three ounces.

Red Wine a convenient quantity.

Common salt a dram.

Mix them, upon the fire into the form of a Cataplasim.

To the Tumour on his right Arm, there was applyed a Cataplasim made of Houshold bread, Meal, of Flax-seeds, Mallows, Marsh Mallows and Oyl of Cammomile. For his thirst he used.

Syrup of the juice of Citrons.

Of Wood Sorrel.

Pomgranates of each two ounces.

In Barly water.

Morning and Evening he drank a dish of Clarified whay made of Goats Milk: his meat was boyled Barly, and a Panada, made of the Crums of Bread, Meat-broath, and Butter, his drink at meals was Barly-water. The matter in his Arm, after some days coming to suppuration easily to be perceived by the touch, I opened the Abscess with an incision Knife, between the Biceps and Deltois Muscle; and

a great quantity of purulent matter flowed out, I applyed to the Orifice which was cut, to mitigate the pain, a tent dipped in the yolk and white of an Egg, and over it Diachylon simplex to suppurate the relicks, the next day the Wound being unbound, I searched the Ulcer with the Globular end of the Probe, and found the Shoulder-bone corrupted, therefore I dilated the hole somewhat with a twisted Sponge and put in a Tent covered with this digestive.

Take of

Turpentine washed in Scordium water, two drams and a half.

As much of the Yolk of an Egg.

Pouder of round Birthwort.

Orrice, of each half a dram.

Hony of Roses streined, a convenient quantity.

Mix them.

In the mean time his body wes purged with these following ingredients.

Take of

The roots of Polipody of the Oak, two drams.

Orrice Roots.

Succory Roots of each two drams and a half.

Leaves of Agrimony.

Betony

Speedwell.

Selfheal.

Wormwood, of each half a pugill.

Senna without the stalks an ounce and a half.

The best Rubarb, half an ounce.

Fresh Trochies of Agarick three drams.

Carthamum-seeds picked half an ounce.

Anise seeds.

Fennel seeds, of each half a dram.

Creme of Tartar three drams and a half.

Cinnamon.

Ginger, of each half a dram.

Raisins, three drams.

Being Cut and Bruised put them into a sack and infuse them in four Pints of water, and hony; of which he took every other day four ounces, two hours before dinner: for the greater drying of the Bone, I injected by the siphon the Decoction divinum, Powder of round Birthwort and Flower-de-luce of Florence; outwardly I divers times bound on a Sponge dipped in Salt-water and Red-wine, and pressed out.

On the 20th. day, for the pain of his Head he used these following Pil.

Take of

The Mass of *Pilulæ Auræ* two scruples.

Extract of *Cochiæ* Pills, one scruple.

Magistery of black *Mechoacan*, seven Grains,

With Syrup of *Betony*, make them into small Pills, and guild them.

Which gave him ten stools.

On the 60th. I took hold of a piece of the Bone thrust out, and drew it forth with the Pincers, and afterwards Cicatrized the Ulcer.

OBSERVATION XCI.

Of a Hand cut off for a Spina Ventosa.

When I studied Physick at *Padoa* and practised Chyrurgery, a Gentleman who was a student there was, troubled for some Months with an Oedema on the left hand, which upon the use of very good outward and inward Remedies, was not at all diminished, but began to be Ulcerated in the palm of the hand: and therefore we called into consultation the most excellent *Spigelius*, who after he had searched the Ulcer with a Probe, and touched the corrupted Bone, he presently pronounced it a *Spina Ventosa*, which is an incurable disease, and requires the amputation of the part effected, it proceedeth from an humour, which by its hidden and Malignant quality, corrodes the Bones without any hurt or pain to the periostium, and then causeth an Oedematous tumour, which is not painfull, but after some Months Ulcerates the part, having obtained leave of the Patient, I cut off the hand above the ends of the Cubitus and Radius, with a hooked Knife and a Saw. *Tab. XXVII. Fig. XI. XIII. & XIV.* And having bound up the Arm, with Bolsters, a Bladder, and Rowlers, *Tab. XXVIII. Fig. I. II. III. IV.* I found in the hand which was cut off, the Bones of the Metacarp corrupted, but still covered every where with the Periostium, except in that place where the Ulcer was.

OBSERVATION CXII.

Of a dangerous Wound on the Arm.

ON the 24th. of June 1638. On the Feast of St. John Baptist, at seven of the Clock in the Evening, the Noble *Frederick*, of *Degenaw*, was Wounded in a Duell by the most Noble D. N. of *Betenderff*, two fingers breath below the bending of the right Arm passing through and through the whole Arm, between the Cubitus and the Radius, hurting the veins, and tendons of the Muscles: with great pain and flux of Blood: the first day it was dressed by no unskillful Chyrurgion, *Johanes Georgius Bauler*. On the second day before and after the unbinding of the Rowler, the Patient complained of a most Violent pain as well inward as outward, about the Orifice of the Wound, as is usual in all Wounds of the Joynts, and for revulsion sake he used this following Glyster.

Take of

- Lenitive Electuary one ounce.
- The Emollient Decoction eight ounces.
- Electuary of the Juice of Roses two drams.
- Oyl of Cammomile.
- Oyl of Violets, of each an ounce and a half.
- Mix them, for a Glyster.

And had two stools. Three Hours after the Glyster came away, the Median vein of the left Arm, was opened, I put a small tent of Linnen into the Orifices of the Wound covered with a Medicine, of which this is the description.

Take of

- Aloe of Zocotora.
- Frankincense.
- Bole Armenick.
- Lapis Hæmatitis.
- Prepared Chrysolite, of each half a Dram.
- Terra Lemnia.
- Prepared Tuty, of each two scruples.
- Dragons Blood, a dram.

Powder

Powder these, and Mix them, with the white of an Egg into the form of an Oyntment.

I anointed the Arm with Oyl of Roses, and Oyl of Earth-Worms warm, and bound it up with Bolsters, pressed out in Red-Wine, and a double headed Rowler; and applied to the top of the Shoulder the defensive Oyntment of *Fernelius*, which is the best of any: and after two hours sprinkled all the Arm over with Vinegar and water mixed: his drink was Barly water made pleasant with Pomegranate Wine. His Meat was Barly boyled and Calf-Foot gelly. On the third day the Patient was better, and the Wound for fear of a new flux of Blood, was not unbound, but the whole member besprinkled as before and anointed with the former Oyls. The fourth day, I unbound the Rowlers, but took not the Tent out of the Wound, but applied Lint covered with an Oyntment made of the white and yolk of an Egg, and the forementioned Powder, I anointed the Arm and used a Bolster dipped in Red-wine and the rowler. In the evening the Patient was better, and had for his supper Cream of Barly dressed with Endive, Pomgranate Wine, and Oyl. On the 5th. the Patient complained of nothing, I unbound the Wound, and took out the Tent, the Blood being stopped, I covered a shorter Tent with the Yolk of an Egg, besprinkled with the former Powder, and put it into the Orifice. I applied a defensative to the Armpit and to the top of the Shoulder, and anointed the Arm with Oyls and bound it up with wet Linnen and the two headed Rowler. On the 6th. the Patient being bound, and having a pain about the bending of the Arm took this Lenitive Syrup.

Take of

Solutive Syrup of Roses, two ounces.

Cassia newly drawn, one ounce.

Citron seeds Powdered, half a dram,

Succory water, as much as sufficeth.

Mix them, and make a Liquid Syrup.

With this he voided five times bilious and serous matter, the Wound was dressed as the day before. On the 7th. a little digested matter, appeared about the Wound, and therefore I added a half part of Frankincense to the Oyntment for stopping Blood, that flesh might grow in the Wound.

Take of

The Powder before described.

Frankincence, of each half a dr m.

A a 4

Of

Of the yolk of an Egg, as much as sufficeth.
Mix them, into an Oyntment.

In which the Tents are to be dipped. From the 8th. to the 10th. The Patient went on evry well. On the 11th. He said, that he had not slept the night before; and by reason of his inquietude, he had moved his Arm up and down, so as some blood came out of the outward Orifice. The blood being stopped, I dressed the Wound, as the day before; and ordered the Patient this following Purging Syrup.

Take of

Solutive Syrup of Roses two ounces and a half.

Extract of Rubarb a dram and half.

Magistery of Tartar one scruple.

Black Cherry-water, as much as sufficeth.

Mix them into a Liquid Syrup.

On the 12th. 13th. & 14th. The Patient slept very well, and complained no more of pain in the bending of the Arm; and the outward Orifice, which upon the motion of the Arm had bled, did now generate Digested matter. On the 16th. Instead of the Tent, I applied dry Lint, and bound on a new Sponge, dipped in red Wine hot, and pressed out, with the Rowler with two Heads. On the 19th. I Cicatrized the Orifices.

OBSERVATION XCIII.

Of a great Excreſcence on the Thigh.

Johannes Ferber of Hamburg, a Swedish Souldier, about the 24th. Year of his Age; had a swelling arose in the inward part of his right Thigh; which in the space of two years, grew to such a bigness: that it was as big as three Mens Heads, and hindred his going. This Excreſcence, a certain Empirick, corroded with a Caustick, that the matter might get out, designing afterwards to Consolidate the Ulcer; but finding no fluid matter, the Empirick fled away, and left the Patient destitute of all help. In the Year, 1634. The Patient came to Ulme, and desired help of *Johannes Georgius Baulex*, a Chirurgion; who when he could not Consolidate this foul Ulcer, with

with any Medicines. By my advice, and the advice of *George Riedlin*, he took hold of the painful ulcerated swelling, with the Pincerrs, and cut it out with a Knife red hot, and the Eschar coming out, the Ulcer was fairly Cicatrized with the Ceratum Divinum, see, *Tab. XXXV. Fig. II.* Looking into the substance of the swelling cut off, which was fleshy and full of Veins, and Arteries. We enquired of the Patient, whether he were naturally so lean, or no? he answered, that before the rising, and encrease of this swelling, he was rather full bodied, whereby we were informed, that this swelling had received, and detained, most of the Aliment, which should have nourished the whole Body. Being recovered and about to leave *Ulme*, I advised him to use a slender Dyet; and every month to apply six Cupping Glasses to his Back, with scarification: till by degrees, the habit of the Body might be accustomed to assimilate the blood to it self, which before Nature was accustomed to transmit for the nourishment of the Tumour. The young Man observed these directions diligently for half a year, and lived in good health to the Year, 1644. At which time, being in the *Bavarian Army*, he visited me, and gave me many thanks for my advice.

OBSERVATION XCIV.

Of a Gun-shot Wound with a broken Leg.

ON the 31st. of *May*, 1644. About six in the evening *Leonardus Henseler* a Heards-man of *Ulme*, was wounded with a Leaden Bullet; which did not only break his left Leg a little below the Knee, so as the Bone stuck out of the Wound, but went through the right Leg also, without hurting the Bone. Things being thus, at the first visit, for want of other Medicines, these following were applied. I injected with a Siphon into the Wound of the right Leg; Oyl of Violets, mixed with the white of an Egg, and put in small Tents, done over with the same Medicine; over that I applied the Cerate of Diapalm, and a Cataplasme made of Barly-Meal, Mallows-meal, White-bread and Milk, and the Rowler with two Heads. Then I set the left Leg, as well as it was possible, and poured in the white of an Egg, and Oyl of Violets, shaken up together; and put into the holes Tents of dry Linnen wreathed, and over that, Diapalm, and the for-mentioned Cataplasme, and bound it up with the di-

divided Bandage (*Tab. XXVII. Fig. I. & Tab. XXVIII. Fig. X.*) and placed it in a Case. On the 1st. of *June*, I cut off a piece of the Bone, which pricked the skin, and made the Patient unquiet all night, with the Pincers, *Tab. XX. Fig. I.* And the Bone being cut off, I cut down the space between the holes with the Syringotomus, (*Tab. XIV. Fig. II C.* and filled up the Wound, which was thus Dilated, with this Digestive.

Take of

Turpentine washed in Plantain-water three drams.

Oyl of Earth-worms a dram and a half.

The yolk of an Egg.

Hony of Roses streined as much as sufficeth.

Mix them for a Digestive.

Take of

Roots of round Birth-wort.

Orice, of each a dram and half.

Mix them into a Pouder.

I sprinkled this Pouder upon the Bones, and applyed dry Lint, but to the Flesh the Digestive; then I covered the lips of the Wound, with the Cerate of Diapalm, and bound up the Leg with the Cataplasme, and the divided Bandage, and then placed it in the Case. In the mean time the Patient, by reason of his fainting took often a spoonful, or two of this Cordial-water,

Take of

Black Cherry-water two ounces.

Borage-water,

Rose-water, of each an ounce.

Cinamon-water two drams.

The Anhalt Cephalick Spirit half a dram.

Magistery of red Coral two scruples.

Pearl Tablets half an ounce.

Mix them.

For his thirst, I prescibed this cooling Syrup.

Take of

Syrup of Vinegar,

Syrup of sharp Pomgranates,

Syrup of the Juice of Citrons, of each an ounce and half.

with

with which he mixed the Barly-water ordered for his Drink : then for the present pain, and for fear of an inflammation, he took a cooling and moistening Glister : which being come away, a Chyrurgion opened the median Vein of the right Arm, and took away six ounces of blood. On the 2^{d.} of *June*, the Patient was somewhat better. On the 3^{d.} of *June*, having rested ill the night before, by reason of another piece of Bone, which very much pricked the fleshy parts. I cut that out also, and sprinkled upon the Bone remaining, the former Pouder, and applied a Digestive to the lips of the Wound. The Patient the same day, upon his being bound, and a great Flux of humours to the wounded part, took this purging Potion.

Take of

Syrup of Roses two ounces,

Lenitive Electuary six drams.

Electuary of the Juice of Roses a dram and half.

The Decoction of the Flowers and Fruits, as much as sufficeth.

Mix them, and make a Potion according to Art.

With this he voided five times bilious and serous matter. On the 4^{th.} day, he was better than the day before. On the 5^{th.} he complained of the Cholick, and therefore I gave him two ounces and a half of Oyl of Almonds, in a Decoction of Flowers of Camomile, and the pain ceased. On the 6^{th.} his Belly being bound, he took the Potion last prescribed ; after the working of which, he slept very well. On the 7^{th.} when the Eschar was fallen off, I bound up the Wound with a Digestive without Oyl ; and instead of the Cataplasme, I wrapped up almost the whole Leg, in the Cerate of Diapalm, with holes made in it ; and with the divided Rowler. On the 8^{th.} I applied this following Digestive to the Wounds.

Take of

Turpentine washed in Scordium water three drams.

Roots of Orice powdered,

Round Birth-wort of each a dram.

Aloe,

Myrrhe,

Olibanum,

Bole-Armenick prepared, of each a scruple.

Balsom of *Pero* one dram.

Syrup of Red Roses, and

Hony of Roses streined, of each as much as sufficeth.

Mix them into the form of a Liniment.

On

On the 9th. The Patient as to his Leg, was well; but at the same time complained of the Chollick, which ceased after a spontaneous evacuation of the bilious matter, by reason of the stinking of the Wound, I injected the Decoctum Divinum.

On the 10th. The Patient was better, and the Wound in the left Leg sent forth Digested matter. Under the Tibia I observed a small putrid piece of Bone, which I washed with the Decoctum Divinum, and covered with the Pouder; and then bound up the wound with the Liniment prescribed, and the Cerate of Diapalm. From the 15th. to the 30th. The Patient went on well; at which time, the Bone in the Superficies of the left Leg scaled off on the outside of it. The Wound on the right Leg began to Cicatrize. On the 27th. of *July*, I drew out a piece of the separated Bone with the Pincers: The Wound on the right Leg was Cicatrized. On the 15th. of *August*, upon irregular Dyet, he complained of a great pain of the left Leg, two Fingers breadth above the Knee; the Wound being unbound, I found an Abscess, which, upon pressing with my Finger, sent forth a great quantity of matter. On the 26th, The Patient took this Pouder, for a bitterness in his mouth.

Take of

The best Rubarb a dram,

Crem of Tartar half a dram.

Black Mechoacan one scruple.

Mix them into a Pouder.

This made him void bilious matter often, after which he was better. On the 25th. of *August*, I took a piece of bone out, of the bigness of my little Finger. On the 14th. of *September*, there appeared another hollownes under the Knee, about the forepart of the Patella, which could not be evacuated by the hole above; and therefore I perforated it with the end of the instrument covered with Wax, *Tab. XIV. Fig. V.* and the matter being evacuated, I agglutinated it with a Sponge pressed out in Red-Wine and, the Rowler with two Heads. After the agglutination of the hollownes, I Cicatrized the Wound in few days by the help of the Ceratum Divinum. So that the Patient on the 4th. of *October*, could walk without Crutches. and in *December*, went about his business without any hindrance.

OBSERVATION XCV.

Of a broken Thigh.

ON the 24th. of December, 1644. *Johanes Kriesinger* a Victualer of *Ulme*, as he was bringing fuell out of the Woods, a Cart laden with Wood, broke, and Wounded his left Thigh, after which he was brought to *Ulme*, where *John Mackenried*, and *George Riedlin*, bound up his Thigh. Upon the 27th. upon the great pain and inflammation I was called in, and at my first coming to the Patient, I inquired, whether the Wound was made by the broken bone, or by a Billet of Wood, informing them that this was very materiall to know in the Cure of his Thigh, and it might be known by his Breeches, for if they were rent the Wound came from without, if not from within: but there could be no hole found in his Breeches, so that it was evident that the Wound was made by the broken Thigh-bone; and therefore I composed the Fracture of the extended Thigh, and bound up the whole Thigh with three perforated rowlers that the large Wound might dayly be discharged, dipped in a convenient Medicine, (*viz.*) Oyl of Roses, Rose-water, and the white of an Egg, stirred up together, to mitigate the inflammation, and pain, and layed it into its case. On the 28th. by reason of an unquiet night and bitterness in his mouth he made use of this thin Syrup.

Take of

Syrup of Roses solutive two ounces.

Extract of Rubarb, four scruples.

Diacarthamum, two scruples.

Magistery of Tartar, one scruple.

Succory water, as much as sufficeth.

Mix them, for a potion.

With which he voided divers times bilious matter. On the 29th. The Median vein, of the left Arm was opened, and seven ounces of Blood taken away, in the Evening the Patient took a draught of an Emulsion, sweetned with Syrup of Violets, he passed that night very quietly, and the inflammation and pain ceased, the inflammation being cured.

ted, I procured the generation of the Callus by Ligatures, externall Medicines, and convenient diet, yet the Patient healeth to this day, because being naturally inclined to anger he never held his Leg still in the case, but moved it up and down, nor is it to be wondred at, for as I have formerly taken notice of it, Men of any years, although they be very obedient are seldome cured of broken Thighs, so as not to halt: unles the Thigh be kept Extended by the instrument called the Glossocomen of Galen. Tab. XXI. Fig. IV. If not all the time of the Cure, at least, while the Patient goeth to stool, or the Bed be made:

OBSERVATION XCVI:

Of a Worm on the Head, and convulsion of the Arm.

A Certain Virgin of *Ulme*, of twelve Years of age, upon stopping the Bleeding at the Nose, which she was accustomed to, was troubled with an immoderate flowing of the courses, and that being stopped she complained of a Tinea on the Head, and a very troublesome convulsion of the left Arm, her body being purged by taking often of *Trallianus* his Pills of Salt-Peter, and her courses returning again, I anointed her Head once every day, with the Liniment of the incombustible flax: which I prepared out of *Ancelmus Boerius*, his History of Stones, and Jewels. L. 2. C. 204. And anointed the Arm twice a day, with the Oyntment of Eve, or the Polychreston of *Spigelius*, the description of which may be seen. *Tab. XLIII.* And with these Oyntments the Patient in a short time was most hapdily cured.

OBSER-

OBSERVATION XCVII.

Of the Leprosie of the Greeks.

ON the 17th. of December 1641. I went with my most dear relation the most eminent Dr. *Johannes Regulus Villinger*, to visit a Lady of *Ulme*, who was in so miserable a condition, and had so sad an Aspect; that I want words to express it sufficiently. for first, she could not stand upon her feet, unless she were held up by two Maid-servants, she looked pale, her Forehead was full of wrinkles and Scales, her Eyes hollow, her Eye-brows bald and smooth, her Nose filled up within with scabbes, and covered with scurfes and Scales without, her Mouth swelled, her Lipps black and blew, her Head hanging down, her Breast bent, consumed away, and beset about with Scabbes, no Hair under her Arm-pits or upon her belly, her Arms and Leggs lean, and covered with Scales and Scabbs, the topps of her Fingers and Toes had no sense nor felling, by reason of a great corrosion, and the thickness of the Seabbs, and her whole Body sent forth a most stinking smell, all the Symptomes being well considered, we named this Disease not an Elephantiasis, or Leprosie; but *Lepra Græcorum*, or Leprosie of the *Greeks*; and had great hopes to cure it, both because the Patient would spare no charges, and would be very obedient, she did so earnestly desire her health; and therefore we prescribed there following Ingredients, to purifie her blood.

Take of

The Roots of Polipody of the Oak,
 Enula Campana,
 Succhory, of each half an ounce.
 Of the Leaves of Fumitary,
 Speedwel,
 Borage,
 Spleen-wort,
 Dandelion,
 Betony, of each a Pugil.
 Senna without the stalks one ounce.
 Choise Rubarb half an ounce.
 Trochies of Agarick three drams.

Black

Black Mechoacan two drams.
 Roots of black Hellebore a dram and half.
 Carthamum-seeds four scruples.
 Ginger,
 Cinamon, of each a scruple.

Being cut and bruised, mix them and put them into a Sack to be infused 24 hours in a measure of Hony and Water : of which afterwards let her take seven ounces two hours before Dinner, and the third day abstain from this purging Medicine, and take a part of this Electuary, four hours before Dinner, and three hours before Supper.

Take of

Conserve of Borage,
 Conserve of Enula Campana, of each six drams.
 Prepared Pearl,
 Red Coral prepared, of each half a dram.
 Trochies of Vipers half an ounce.
 Syrup of Coral, as much as sufficeth to make it into an Electuary.

And drink after it, a draught of Clarified Whay, made of Goats milk.

After the repeating of these purging Ingredients, she bathed herself an hour in a Bath made of fair water ; in which Fumitory, Mal-lows, Speedwel, and Enula Campana, were boiled : afterwards, her Body being wiped, she anointed her self with this following Oyntment.

Take of

Pomatum two ounces,
 Balsom of Peru two drams.
 Flower of Brimstone two drams and a half.
 Oyl of Tartar two ounces:
 Mix them into an Oyntment.

Upon the use of these Medicines, the great stink, and continual itching of the whole Body remitted, and the Scales fell off from the tops of her Fingers and Toes : for the generating new Flesh where it was eaten away, in those parts I applied and Oyntment made of the yellow Cerate, and Oyl of Myrtles : the Maid-servants anointed her Back with Vipers fat.

She drank a Decoction of China for her ordinary Drink. But here some may demand why this Patient, who laboured under a Consumption of all parts, should make use of Vipers Flesh, to which it may be

may be answered, that seeing that Diseases of the whole substance will not be cured, but by Medicines which work by a secret way, and by their whole substance; and the Leprosie of the *Greeks* being such a Disease; it will not be cured, but by Medicines, which Act by an occult Propriety, amongst which, Vipers Flesh doth not hold the lowest Rank. On the 6th. of *January*, 1642. The median Vein of the left Arm was opened, and four ounces of blood taken away; the top of which, appeared white, greenish, and putrid; but the bottom black and not concreted, and the Chyrurgion who let her blood, said that he smelled a great stink when the blood came out. This being done, she made use of the purging Ingredients the third time, and the Electuary, to which I added a quantity of Trochies of Vipers.

Take of

Conserve of Borage ten drams;
Trochies of Vipers four drams.
Red Coral prepared,
Prepared Pearl, of each half a dram.
Syrup of Coral, as much as suffieth to make it into an Electuary.

Which with great efficacy doth expell the malignant matter from the Center to the Circumference: when the filthines abated, the Patient began to sleep, and drank no longer Whay of Goats-milk. After the taking of the Electuary in a fortnights time she took these Pills twice.

Take of

The mass of the Golden Pills two Scruples.
Extract of Cochie Pills half a scruple.
Magistery of black Mechoacan seven Grains.
Extract of black Hellebore half a scruple.
With Syrup of Betony, make them up into one and twenty Pills, and guild them.

Which gave her ten Stools; after the second using of these Pills, the Hair began to grow again upon the Eye-brows, under the Arm-pits, and else where. Things being thus, we forbore the further use of remedies, the time of her Courses being near, and advised her for the future if they came down in too small a quantity, or too slowly, to promote them with a dram of these Ammoniacal Pills

Take of

Aloe extracted in Endive-water,
B B

Gum

Gum Ammoniacum dissolved in Vinegar of Squills,
Myrhe prepared, of each a dram.

Mastick,

The Species of the three Sanders's, of each one scruple.

Salt of Worm-wood a dram.

Syrup of the Juice of Roses, as much as sufficeth.

Mix them into a Mass for Pills.

With these remedies the Lady recovered her former health.

OBSERVATION XCVIII.

Of Oedematous and Erisipelaslike inflammations.

In inflammations that are both Oedematous, and like to St. Anthony's Fire, which for the most part invade the Limbs, and are often very troublesome, both to Physicians, and Chyrurgions, I never experienced any thing better, than this following remedy, which a German Chyrurgion, communicated to the most excellent Spigelius, for a rare secret, and so certainly it was.

Take of

The Lye of the Ashes of Vine Branches one pint.

Salt-Peter a dram and half.

Common Salt an ounce.

The best Wine Vinegar an ounce. †

Mix them

And after general remedies; dip a double Linnen Cloath in this luke-warm, and apply it to the Part affected, binding it on with Rowlers: this doth wonderfully drink in, and discufs, in three, or at most, in four days time, great dangerous swelling, & threatening mortifications.

OBSERVATION XCIX.

Of the Shin bone corrupted, and scraped with the scraping Irons.

A French Soldier who had been troubled with a Virulent Gonorrhea, which was unseasonably stopped by injections, fell afterwards

swards from his Horse upon the Stones so as the Skin came off of his Legg. This Ulcer being dressed with ordinary Medicines became malignant and corroded the Shin-bone, for the cure of which I proposed a sudorifick course, and that being finished I made an incision with my Knife, right down the Legg, and dilated the Wound with astringents, and then scraped the Bone with the scraping Irons, and covered it with Cephalick Powders. I incarnated the Ulcer with the yellow Oyntment, which doth most excellently and wonderfully well in corroding Ulcers, and Cicatrized it with the noted Cerate; See. *Tab. XLIII.* under the letter *R.* the *Observation* of *Martin Smith*, who for such a corrosion of the Legg, and Shin-bone very successfully underwent this manner of cure with the scraping Irons.

OBSERVATION C.

Of a Leprosie taking its Original upon the eating of Leprous flesh.

IN *Autumn 1637.* A Butcher of *Ulme*, in the middle of his journey towards *Vienna*, was entertained at his Inn by an Hostess who was a sorceress, with the boyled flesh of a Man lately dead of the Leprosy; upon eating of which the whole mass of his Blood was presently infected, which sent out Malignant Boyls to the superficies of his Body, and first of all to his Head, and hearing the report that this wicked Woman was burnt publicly for many other and several offences. he was very melancholly and began to despair of the recovery of his health, but lest he should seem to be wanting to himself, he consulted with a Chyrurgion otherwise experienced enough, who not pondering the business sufficiently, attempted to restore the Patient, but in vain, only with outward Oyntments, till at length he did most earnestly intreat my most eminent Colleague *Dr. Johannes Georgius Gockleius*, divers times cited in our *Observations*, and from whose Communication I had this cure, that he would assist him in this affair, and try his uttermost.

The Dr. according to his usuall humanity demonstrating to the Patient and the Chyrurgion, by solid reasons, that without the frequent taking of inward Remedies, and preparing of the mass of Blood, and depurating of it: the use of purgers, and bleeding the discussing of —

the communicated malignity by sudorificks, the strengthening of the Liver, and at last, the orderly anointing of the outward parts, this Disease, although not yet rooted in, could never be Remedied, the Patient promised all obedience in the cure, and the Dr. assured him of his care, and diligence and after this manner went about the cure.

First a regular Diet was ordered, Meats of good digestion prescribed, and free from all sharpness as in the cure of the French-Pox; for his drink he ordered a Decoction of Guaiacum and Saffras to be prepared with Anise-seeds, and Fennell seeds; a stronger Decoction, to provoke sweat: and a weaker to quench his thirst.

Secondly, he prepared his Body for purgation two days together, with this digestive.

Take of

The Syrup of the two opening Roots, an ounce.

Hony of Roses streyned, half an ounce.

Cream of Tarter powdered, one scruple.

Asparagus water.

Fumitory water, of each two ounces.

Mix them, for one Dose.

Thirdly, he removed the vitious humours of his Stomoch, by this following Medicine, taken in Wine.

Take of

The best Mercurius dulcis; one scruple.

Crocus metallorum, fix grains.

Camlogium, seven grains.

Mix them. into a powder.

Fourthly, he ordered the Median Vein of the right Arm to be opened, and five ounces of Blood to be taken away.

Fifthly, after some days resting he prepared his Body again, four times with this powder in Broth.

Take of

The Tartarum Vitriolatum, powdered half a dram.

Give four Doses of this at several times.

Sixthly, he most happily proceeded to the cleansing of his Blood with these Specifick Pills.

Take of

Crolius his Panchimag. two scruples.

Mercurius dulcis, one scruple.

Camlogium seven Grains.

With Black cherry water, make them into ordinary Pills;
for one Dose.

Seventh-

Seventhly, he proceeded to Sudorificks in which the Patient being very regular he took daily in a draught of the stronger Decoction of Sassafras a Dose of this following.

Take of

The Golden Diaphorætick sulphur,
From twelve grains to fifteen, Make it into Powder for
one Paper.

And for a month together in the Morning keeping his bed for two hours he sweat very plentifully, except every seventh day, when he repeated the taking of the Pills before described. Eightly, being let blood upon this, the blood which came out of his left Arm was much more pure than the former. Ninthly, the impurity remaining (upon his skin, was wiped off in a stove, and his Head was cleansed with this Lye, made on purpose.

Take of

The Roots of Bryony one ounce.
Dock Roots half an ounce.
Leaves of Hore hound,
Crisp Mint,
Wild Marjeron.
Betony, of each half a handfull.
Camomile flowers.
Roots of Asarabacca with the whole plant, of each two pugils.
Crude Aggarick half an ounce.
Cut them grosely and boyl them in common Lye.

Tenthly. Some sores remaining in his Head and other parts of his Body, were healed, and all outward uncleanness, was finally taken away with this Oyntment

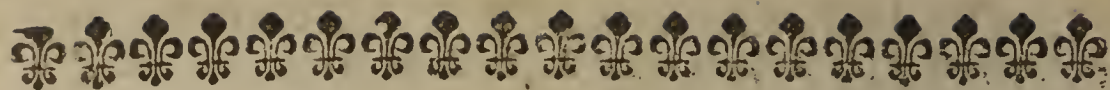
Take of

The white Oyntment with Camphir one ounce.
Mercurius Dulcis two drams.
Grind them well together, and put them into a Pot.

So by the Divine favour, the Patient very well known to me, was in ten weeks time most happily restored: he continued the use of the Decoction of Sassafras for his ordinary Drink for some time, and the Disease never broke out again in the least, all the days of his life.

Perseus.

FINIS.



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FINIS.

